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THE HEALTH MAGAZINE

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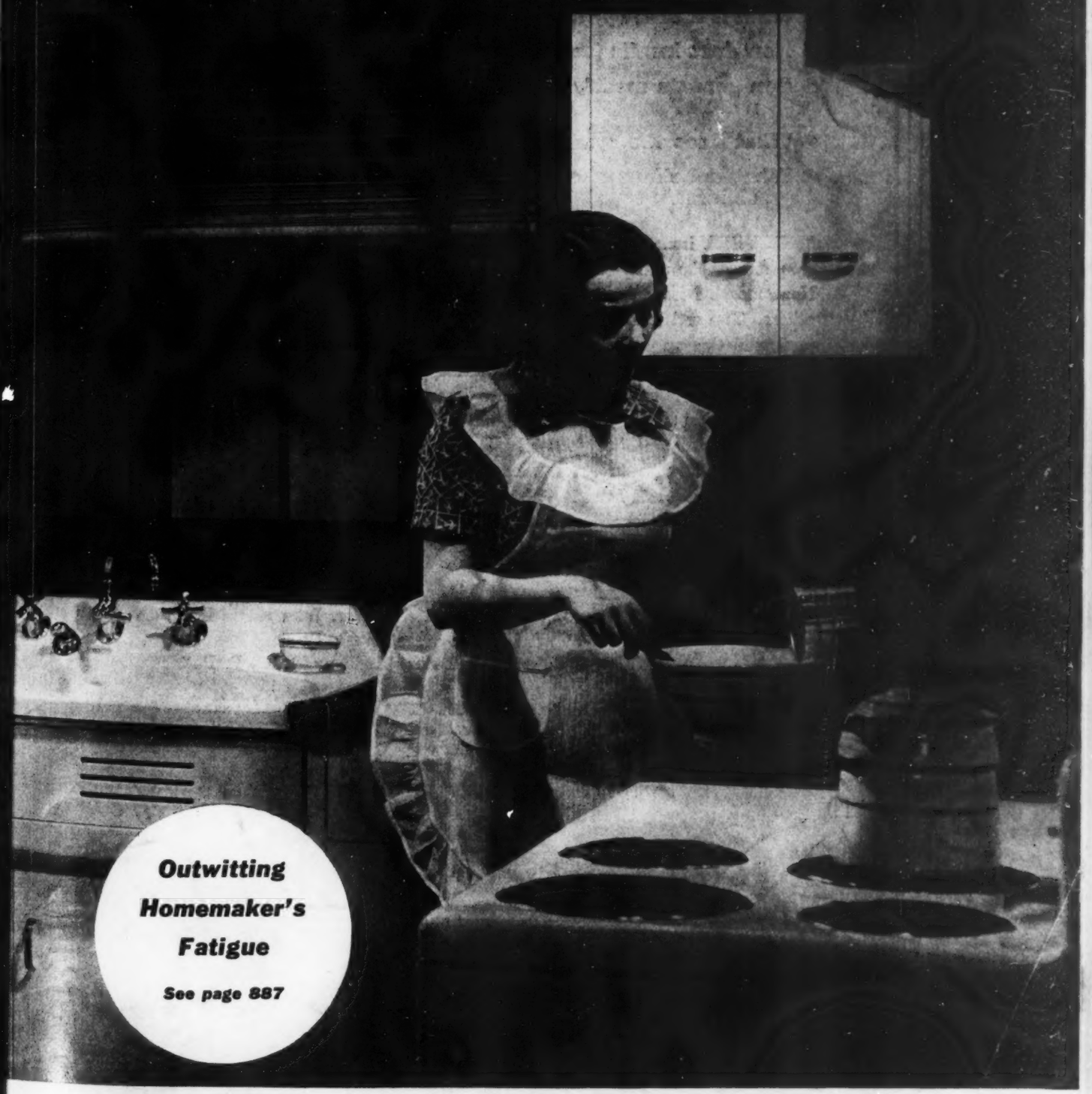

Outwitting Homemaker's Fatigue

See page 887

Left-Handedness • Acne • "Can 'Sinus' Be Cured?"

AN AMERICAN MEDICAL ASSOCIATION PUBLICATION

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IN EVERY issue of HYGEIA, *The Health Magazine*, you'll find articles, stories, photographs and pictures which answer many puzzling questions on health. Next month's issue is typical—it answers the questions above and dozens of others. The article titled **"Oh, It's Just A Cold"** by Dr. Jay N. Fishbein gives you good tips on outwitting this season's crop of colds. Dr. Arthur J. Cramp entertains with an exposé of the **"Natural Eyesight Institute"** fraud. In **"Oysters and Oyster Farming,"** Lewis Radcliffe describes the inside story of how oysters are raised for the market. You'll have a greater knowledge of all types of anesthesia after reading **"The Apple of Sleep"** by Dr. Robert A. Kilduffe. In **"What You Should Know About Diabetes,"** Dr. Samuel Gitlow tells just that. **"Extrovert and Introvert"** by Paul Popenoe gives definite ways of improving the child's personality. **"Hospitals On Wings"** by S. R. Winters tells the exciting adventures of the U. S. Coast Guard **"Flying Hospitals."**

And also: **"Charley Horse"** by Dr. J. C. Elsom
"To Every Child A Chance" by Dr. John Eisele Davis
"Riding, Part I" by Dr. Dudley B. Reed
"Tuberculosis Up To Date: VIII" by Dr. B. P. Potter

By all means read the November issue of HYGEIA, The Health Magazine! If you are not a subscriber to HYGEIA, take advantage of the Special Offer below. If you already subscribe to HYGEIA, perhaps you would like to make a gift subscription to a friend.

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OCTOBER 1938 Vol. 16 No. 10

HYGEIA

THE HEALTH MAGAZINE

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PRESENTING

DONALD B. ARMSTRONG, M.D., hygienist and author of numerous books on sanitation and disease, who presents a radio talk given under the auspices of the New York Academy of Medicine.

ALWYN W. KNIGHT, who in honor of Navy Day (October 27) tells of the peacetime work of the Red Cross in behalf of the bluejackets and their families.

LOU TREGONING, formerly assistant foods editor, Chicago *Daily News*, and foods and equipment specialist, faculty of Iowa State College, who tells homemakers how to keep physically fit and mentally alert.

INIS WEED JONES, special feature writer, who in a discussion of acne, the plague of youth, throws a scientific searchlight on the ignorance, sex superstitions, prejudices and fears which have long surrounded that subject. The author was formerly dean of women, University of Washington, and has contributed articles of social and medical interest to the foremost magazines of the country.

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"I never want to go to another party!"

"BUT, dear, tell Mother—what *is* the matter?"

"They wouldn't let me play with them. They let me be by myself all the time. They—they *laughed* at me."

What should Mother do? Denounce the other children as ill-raised little barbarians? Prevent further contact with the youngsters who should be the child's playmates, and the neighborhood that should be her happy little world?

Those would be natural and understandable reactions for any mother. But unfortunately, they would tend only to make matters worse.

When a child is "different" or "difficult," the most sensible thing to do is to get the help of your doctor. And the reason is that the underlying cause, while occasionally psychological, is usually *physical*.

For instance, a child can be slow and awkward at childhood games, because anemia is robbing her of energy. A child can appear backward because a glandular disorder is causing sluggishness, because faulty hearing prevents her from catching questions, or because faulty eyesight prevents her from reading correctly. A child can be sulky or ill-tempered, not because it is her nature to be so, but because some physical derangement is *making* her act that way.

The tragedies these disorders heap upon little heads are very real tragedies. But even more serious is their possible influence on the child's future. The "laughed-at" child so often becomes the crushed and morose adolescent. And the morose adolescent frequently becomes an embittered man or woman in an unfriendly world.

If your child's present and future happiness is being threatened, see your doctor. You will find him a helpful and understanding friend.

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EDITORIAL

The Play Goes On!

DRAMATISTS, artists, poets and novelists have depicted for many centuries the great drama in which the ever recurring plot is the battle of the doctor against disease for the life of the patient. In an earlier day, only the doctor and the priest among men fought on the side of the patient. Gradually as medicine developed, more and more agencies and assistants came to range themselves on the side of the physician. The nurses, the laboratory, x-ray and physical therapy technicians, the hospital administrators and the kindly relatives, neighbors and friends gave of their utmost to defeat disease. Health departments were organized in municipalities, counties and states, and have constantly done everything possible to ward off death. This drama has a personal interest for every one—sick or well. It was not surprising, therefore, that sooner or later the politician should have seen here an opportunity to build a following, which would look to him as a benefactor in averting evil. To him would go the gratitude of the public when death could be averted, pain and suffering eliminated, and disease overcome. And all those who really carried on the war against death would look to him for employment!

Soon it was realized that politics and medicine make an incompatible mixture. All those who in the past have ranged themselves on the side of the patient against disease and death have realized that they have served a noble, if not a holy, calling. From the first the physician and the priest have been identified as persons of a higher type, ready to sacrifice themselves for the good of mankind. Until quite recently no one would have dared even to insinuate that a doctor practiced medicine primarily for gain. Indeed one need only look at the incomes of the vast majority of physicians in this country to realize that such an insinuation is wholly unwarranted.

When health departments began to be established in cities, counties and states, politicians saw opportunity for patronage. Again and again attempts have been made to put health departments into politics for the patronage that could thus be wielded. Until recently it was commonly accepted that politics must be kept out of health departments and that a health commissioner should be chosen primarily for his competence as a man against death. Mayors of great cities who possessed under the constitutions or charters of their communities the right to appoint health commissioners have constantly sought to avoid political pressure and to choose for such positions men of great capability without regard for partisan politics. Not long ago the mayor of San Francisco left to a committee of five distinguished scientists the choice of a health commissioner. The mayor of New York went beyond the bounds of his own city and state to find a man capable of conducting the health department of that city free from political manipulation. Many a large community today calls on the United States Public Health Service to give one of its trained practitioners in health service a leave of absence so that he may take over an executive position under local, county or state control. Nevertheless the field of health continues to appeal as a tempting morsel to the appetite of the politician; it appears to be a new field in which he may dominate and conquer. The politician conceives of himself perhaps as a combination of dramatist, stage manager and financial manipulator. An appeal to the public in relationship to the individual's health gives the politician an entrée into the most intimate aspects of human life, capable of being capitalized politically in a way not possible with any other human interest or activity.

Until now medicine has been kept largely out of politics. Yet there is every evidence that by the forces of propaganda, publicity and political pressure an attempt is being made to make medicine and the care of the sick a major issue in future political campaigns. The answer must come eventually from the people. Heretofore even the worker, who has been reduced in many a great industry to the status of a robot, has found a refuge for his individuality in sickness. It is perhaps his last refuge until he escapes into death. The worker must answer in the future the question as to whether or not he wishes to continue to be considered as an individual human being in time of illness or whether he wishes to dance at the end of the string of the political manipulator. Will the new "Medicine à la Mode" be a show of puppets in a marionette theater?

***ALWYN W. KNIGHT** observes Navy Day (October 27) with the story of Rogers of the Red Cross, friend of the fleet*

"TELL IT TO ROGERS"

"MY WIFE IS IN TEXAS, AND SHE DON'T KNOW ANYBODY TO ASK ADVICE FROM. AND I GOT THIS LETTER, AND I'M ABOUT CRAZY. I DON'T EVEN HEAR ORDERS RIGHT. SO—WHAT'LL I DO?"

SO THE BLUEJACKET had finally come to the Red Cross office in the paymaster's shack. He was "shooting the works" now and already felt less anxious. This man Rogers gave him the impression that he had dealt many times with similar problems—that he knew all the answers.

The "gob" shoved his cap on the back of his head and blurted: "My wife wrote me this letter, see, and she's coming to time right soon. A baby, Mr. Rogers, see? And she don't get along none too good with her mother and stepfather, and they're going to throw her out." His voice thinned incredulously. "Pitch her out on her ear when—when—"

The Red Cross field director, this Rogers man, smiled—not a benign smile, which probably would have irritated, but an understanding, patient arrangement of features beaten stern by time. When he said slowly, "Where's your home, son?" there was a gargoyle saintliness about the painfully erect way he sat. He was a little bald, a little stooped, and only his eyes were remarkable. They were a mild, shining blue with the seeing quality of a surgeon's spatulate finger tips. You noticed them especially as they watched this sailor who had hesitated to come to him for advice—who had hesitated, yes, until one of his mates said, "Sure, see Rogers. He fixed Benny up, didn't he?"

Waiting for the bluejacket's answer I looked out the window, seeing the big sprawl of the Brooklyn Navy Yard in a new light. More important than the gargantuan drydocks, or the unbelievable derricks with their jib booms skewering white clouds to the blue ceiling above, were the men, the gobs and leathernecks at the yard. And I could see how their peace of mind was necessary to efficiency as oil is to machinery. I glanced to the right at the receiving ship, the old U.S.S. *Seattle,* riding serenely at berth in New York harbor like a war horse pastured, where Rogers lived. And I found out later that there, even after hours, he was always "at home" to his boys, the only proviso being that they be in trouble.

"My home?" the gob was saying, struggling for composure. "Texas, Mister. She's down

in Texas, my wife is, and she don't know anybody to ask advice from. And I got this letter, and I'm about crazy, and I don't hear orders right, even. So—so what? I can't blow down Texas way myself without going A.W.O.L.!"

Rogers said reassuringly, "Take it easy, son. There's probably a Red Cross chapter near the town where your wife lives. I'll contact our people there at once. Then your wife can talk to them, and they can talk to her. Almost as good as going down there yourself, you see? So forget it. We'll do the worrying."

The slow disbelief on the face of that bluejacket! Then the understanding and hope. He got up, sat down again, wiped a navy blue sleeve across his face and grabbed Rogers' hand. You knew how relieved he was because he began talking so fast about nothing at all; you knew it because he looked tickled fit to bust. Sitting over in the corner, watching this human bit of business, I relaxed and smiled some myself. The relief in there was catching.

Rogers got some more of the details, dug after this fact and that, and then sent the boy back to his ship so that he could write at once to the Red Cross in Texas.

Later I learned that scenes like this take place perhaps hundreds of times daily throughout the nation—in America's far ports of call and our insular possessions and even on the high seas. Three score and more men like Henry Rogers, not to mention their trained assistants, make this father-confessor job to the men in uniform their life work. These Red Cross men are not only trained but seasoned, and the advice they give and the work they do is as practical as prunes in army rations. It is a social service work, conclusive and personal.

Later, too, I found out how Rogers handled the case of that wife who lived in Texas. Texas—at the end of the world as far as that bluejacket was concerned! The Red Cross chapter in Texas where the girl lived got in touch with her. A hospital and a doctor figured staggered payments on the confinement bill which the sailor could handle and arranged for a comfortable housekeeping room so the girl would not have to return to her stepfather after the baby came. That's how the Red Cross fixed it.

This is the story of Henry W. Rogers, best friend and adviser to the gobs and leathernecks at the New York Navy Yard in Brooklyn. Twenty years now he has been in Red Cross harness: field director at the Cape May Navy Base first; then Siberia with a Red Cross relief unit; China; the Philippines; Japan—as the only national headquarters representative at the time of the devastating earthquake of 1923, and finally to the New York Navy Yard. Here he has been since 1925, getting his "boys" out of

THROUGH EFFORTS OF ROGERS, THE AID OF THE RED CROSS IN HER HOME TOWN WAS ENLISTED. AFTER THEY REACHED HER THEY MADE ALL ARRANGEMENTS FOR HER CONFINEMENT.

jams and keeping them from sticking their chins out; helping their families back home; working with Uncle Sam's officers stationed at the yard to keep A.W.O.L.'s to a minimum.

But Rogers' story is also the story of his work: an outline of that branch of Red Cross service which covers the Army, Navy, Marine posts and Coast Guard stations in America and our insular and territorial possessions. None skipped. A two-way link between the enlisted man and his family and the enlisted man and his superior officers. A Red Cross disaster service which prevents as well as rehabilitates and always in a personal, private way.

A statistical review of this branch of Red Cross endeavor discloses the following comprehensive facts: A total of 206 Army posts and 8 Army general hospitals, 408 Coast Guard stations, 127 Navy and Marine Corps stations, 10 Navy general hospitals and St. Elizabeth's Hospital in Washington, D. C., are covered. "Tell it to the Red Cross" has come to be as well known as the catch phrase, "Tell it to the Marines!" but the former means hope rather than disbelief.

A case in point is an incident Rogers himself outlined to me while I was at the yard. He had received a radio from the U.S.S. *Henderson* enroute to the Asiatic Station—a request to direct the Red Cross to get in touch with the wife of a sailor, since she had been reported critically ill.

Put yourself in the place of that sailor! You've heard that your wife is sick, very sick. A battle cruiser can't turn back, you know. So you're checkmated, stymied, with your floating home taking you further away each minute under a nice head of steam, and each revolution of the steel hull's screw is like the twist of a thumb screw to you—a plain and fancy nightmare. But—radio the Red Cross!

Rogers knows how the sailor feels, and don't think he doesn't bite his nails short until he gets that call through to the Red Cross chapter where the wife lives. Immediate, personal investigation. The call back—and hurry that connection, operator!

Rogers, back at the Brooklyn end, gets the call, listens, eases off a bit. Good—only a slight illness, eh? Confinement coming soon, eh? The chapter and Rogers talk it over and make plans. Soon the *Henderson* gets a radio message. It's all fixed. Arrangements for prenatal care have have been made and for hospitalization without charge. The radiogram is signed by H. W. Rogers, American Red Cross, U.S. Navy Yard, New York, N. Y. And another youngster on one of Uncle Sam's floating forts can sleep nights again, knowing that the Red Cross link between himself and his family is welded tight.

This chain of Red Cross field directors is a boon to commanding officers, enlisted men and their families—all three. A youngster "joins up," and the family tie, rather definitely knotted by time, is severed. As the days pass, the family, not hearing from the boy, becomes worried. The boy means to write, but his surroundings are so new, so different, he somehow doesn't get at it. But long before the vague alarm of the family gives way to panic the Red Cross field director has dropped a card to the folks back home. Just a form letter, to be sure, but it says that the boy is there, is all right; it says that the Red Cross is standing by. And no one but the families who have received them can tell you how much these brief messages of reassurance mean.

The newly enlisted man himself is at once cordially invited to tell his troubles at the Red Cross house. The field director usually is middle aged; he has been around, and his advice stems from experience and not theory. "Let's hear it!" he says brusquely, and the boy gets it told, hands the load on his chest to the Red Cross. Typical difficulties include trouble at home, a kink in personal affairs, allotments of pay, the need of vocational training, lost discharges, legal difficulties, compensation, medals and homesteads.

And the officers of these men—what about them; What about the service itself? During peacetime, what does the Red Cross do to help Uncle Sam run his defense gymnasiums at peak efficiency? Well, absentees without leave have always constituted a major problem, and the Red Cross does a large-scale job of keeping these to a minimum. Family troubles are mostly responsible for a man going A.W.O.L. They are responsible too for a peculiar sort of absent-mindedness while on duty, a dangerous thing.

There are hundreds of instances to show that this is so. One collected first hand is pointed. A flight commander at an Army air base swiveled back in his chair and said:

"The Red Cross help us? The answer is obvious, isn't it? To the civilian, family trouble is not so serious. He can talk it out. Even if he can't keep from worrying until adjustment is made, he doesn't endanger his own life and those of others in the interim.

"But take a pilot. Often he can't see his family, and distance makes things look blacker than they are. Worry? Rather! And his job doesn't make his state of mind less acute—not by a long shot! He's on the stretch all the time—nerves tight as strut wire. And if he keeps on worrying and fuming, he's maybe going to crack up. That's why the Red Cross field director has such an important job from our standpoint. Through its chapter in the home town of the boy's family, the Red Cross can get information we can't take time to ferret out. There's personal contact there, and with personal contact most troubles can get straightened out quickly. Does the Red Cross help us? Why, man alive!"

(Continued on page 942)

A BULL'S-EYE FOR HEALTH

By D. P. KENNETT and RICHARD FECHHEIMER

THINK OF YOURSELF with your shoulders straighter and your eyes keener! Think of yourself feeling added strength in your shoulders and back. Think of yourself walking 10 miles at a 4 mile an hour stride without a single complaint from weary calves.

Inviting picture, isn't it? Actually glowing with health and vitality! It isn't a dream or an advertisement either! It's simply the result you'll have from playing a game—yes, honestly, a *game!* And it's not a new game either, if we can believe the geologists who tell us that it was being played more than 50,000 years ago.

Most people have forgotten all about toxophily. (Don't say you couldn't forget something you never heard of; toxophily is simply the trade name we had to give to archery in order not to infringe on certain aboriginal patents.) Most people have forgotten how much fun it is to play with a bow and arrow. Most people have forgotten what a healthy sport it is.

To be quite honest, we were initiated into the sport by accident—and almost a fatal accident at that. We were walking through the Forest Preserve at the time. It was one of those warm, langy October afternoons filled with the smell of autumn and with the frosty threat of coming winter in the air. Maples and oaks and beeches had already been painted their seasonal colors. A light breeze had filled the air with whirling leaves that drifted slowly to earth and blanketed the paths to shuffle and rattle their dead bodies together as we walked along. We had just put the sailboat in dry dock and were still a bit upset about having to give up sailing, that keenest of summer sports.

"Old Doc's right," Don said, "right as rain. We've got to keep on exercising even though summer's over."

"Well, this is the football season; but with your phys—"

"All right, you're not built like an All American either!"

"Of course, we could try basketball or tinkering-in-the-basement . . ."

"No, it should be outdoor exercise—it's so nice outside."

We agreed on that. We walked on, kicking the leaves to hear them rustle and looking up at the deep blue sky.

"Maybe horseback riding," Don was beginning, when suddenly there was a swish in the air and a startling "thock" behind us. We turned quickly and stood for an instant with our mouths agape. Not 15 feet away was an arrow! Its point was buried in the trunk of an oak. The long, slim shaft still quivered.

"Injuns," we might have shouted, had we not been past the age of Wild West stories. "The Injuns are after us," we might have shouted, jumping behind a tree. As it was, we jumped behind a tree so fast we had no time to shout.

And just in time, too! Another arrow swished through the air with a breathless rush—then another and another, until the trunk of the oak was studded with feathered shafts. Back down the path, dry leaves rattled under approaching feet. We heard voices that no imagination could convert into war whoops. Peering cautiously from our hiding place we saw the "Injuns" appear a moment later, strutting in full regalia.

There were two boys and two girls, all of them about 18 or 20 years old and all carrying bows. By their sides they wore full quivers of arrows. We walked out into the open to comment venomously on the carelessness of inconsiderate youths but had hardly left the shelter of our stout elms before we had to scramble back to their protection again. One of those female bow-and-arrow-drivers had her weapon at full draw and, through our experience with female auto drivers, we knew that the best thing to do was to stay under cover.

With the desperation of the hunted we shouted for a truce. Came a moment of tense silence and then calls of apology. We strode humbly forth, traded a few cigarets with the "Injuns" and looked at them curiously. Bows and arrows were only a part of their equipment. On the inside of their left arms, each wore a leather guard that stretched from just above the wrist to halfway up the forearm. This was protection, we learned later, against the bowstring's welt-raising attack on the wrist.

On the first three fingers of the right hand, each of them wore leather tabs to protect their finger tips from the chafing of the bowstring. One of the girls was wearing the three fingers and part of the back of an old glove. The bows were beauties! Two were of the longbow type that Robin Hood and Little John made so popular in Sherwood Forest, and the other two were flat bows.

We watched the youngsters pull the long, gray-fletched (more about that word later) arrows out of the oak tree and drop them into the carefully worked leather quivers.

"Let's take a shot." We held out interested hands and received the unstrung longbows. "This looks as though it might be fun."

It was fun, especially trying to string the bow. The bowstring hung carelessly, suspended by a thin ribbon from a piece of horn at the upper end of the bow. Before shooting an arrow it was necessary to put the loop in the string over the notch, or nock, at the upper end of the bow so that the bow would bend in a graceful arc.

We grunted and pushed and pulled and strained and bent until exercises one, two, seven and ten of our plump adults' calesthenics class had been far surpassed. But still the bow wasn't strung! The loop in the bowstring would almost make the nock and then would slip back. In a frenzy we actually started to climb the bow while three of the "Injuns" shrieked with ill-bred laughter, and the fourth snatched the bow from our awkward hands with what sounded like a nasty threat.

"Here, yah wanna break it? Lemme show yah." He demonstrated the correct stringing technic. The lower end of the bow, we carefully observed, went under the ball of his left foot. Then he grasped the handle with his left hand and pulled while he pushed along the upper end of the bow with the heel of the right palm. The loop slid into the nock as though it had been told to go there.

And then we learned about the fistmele. The fistmele is a term that's almost as old as the history of archery and is an archer's measurement for the correct distance from the bowstring to the belly of the bow when the bow is strung. It comprises the distance from the outer edge of the palm to the tip of the thumb when the thumb is held at right angles to the rest of the fingers.

Then we tried to shoot, without an arrow, of course, as the "Injuns" by this time regarded us with the same uneasiness that you would normally feel in the presence of a 5 year old boy swinging a crowbar around his head. We pulled on the bowstring a couple of times. It was difficult. We took a better grip and pulled again. It was still difficult.

By this time the "Injuns" were decidedly eager to be on their way. One of them took the bow, put an arrow to the string and let fly with what seemed like ridiculous ease. "Takes practice," he muttered discouragingly.

"Where can you buy one of those outfits?" we wanted to know.

"Buy!" The tone was withering in its scorn. "We made these!" And with one accord the four of them stalked loftily away. As the boys strode into the woods the long feathers in their battered old felt hats took on the appearance of Robin Hood's yards of green velvet. With nonchalant, fearless step the young archers seemed to be about to invade the dense growths of Sherwood Forest to hunt the king's stag.

"Sa-ay, that ought to be good exercise. That bow was really hard to pull!"

"Let's ask Doc about it."

So down we went to talk to old Doc, who is the one who started us on our Exercise-for-Health campaign.

"Sure," said Doc, "sounds like just the thing."

Here we made the mistake of asking, "Just what thing?" And in a second, Doc let loose a shower of words about serratus magnus, deltoids, biceps and other names that meant about as much to us as would the itinerary of the

Japanese army. When we finally convinced him that we didn't speak that language, Doc translated.

Archery, he explained, is good exercise for shoulders, arms and stomach. Walking after the arrows is good for the legs, too. Best of all, according to Doc, was the fact that the sport would keep us outdoors, putting fresh air into our lungs and relaxing our eyes by letting us look at distant and green objects.

He pointed at our middles. "Got to keep the paunches down," he reminded us. "Besides, it's a new sport for you—that means getting new muscles into play. And you'll have a new interest, too. Nothing healthier than having a new interest to get enthusiastic about."

Then off we went to learn more about archery. First, we read books. We learned that the first evidences of the bow were discovered in the fossils of the third interglacial period, which was more than 50,000 years ago. That makes it one of the oldest weapons in the world. The ancients say that the bow was first given to mankind by Apollo, whose sister Diana won her fame through her skill as a bow and arrow huntress.

The Normans, we found, were the expert archers of medieval times. They it was who

passed the art on to the Anglo-Saxons and brought about the era of the popularity of the longbow in England. The Turks were renowned for the deadly bows they made of buffalo horn and sinew. The Persians built up a complete course of archery training for their young men. For many years the bow was one of the chief reasons for the supremacy of the Persian on the field of battle. Every boy was trained to be an expert archer in order to defend that supremacy. And always, in the jungles of the world, among the simpler, aboriginal peoples, the science of archery was carried on. The American Indians were masters of bow *(Continued on page 936)*

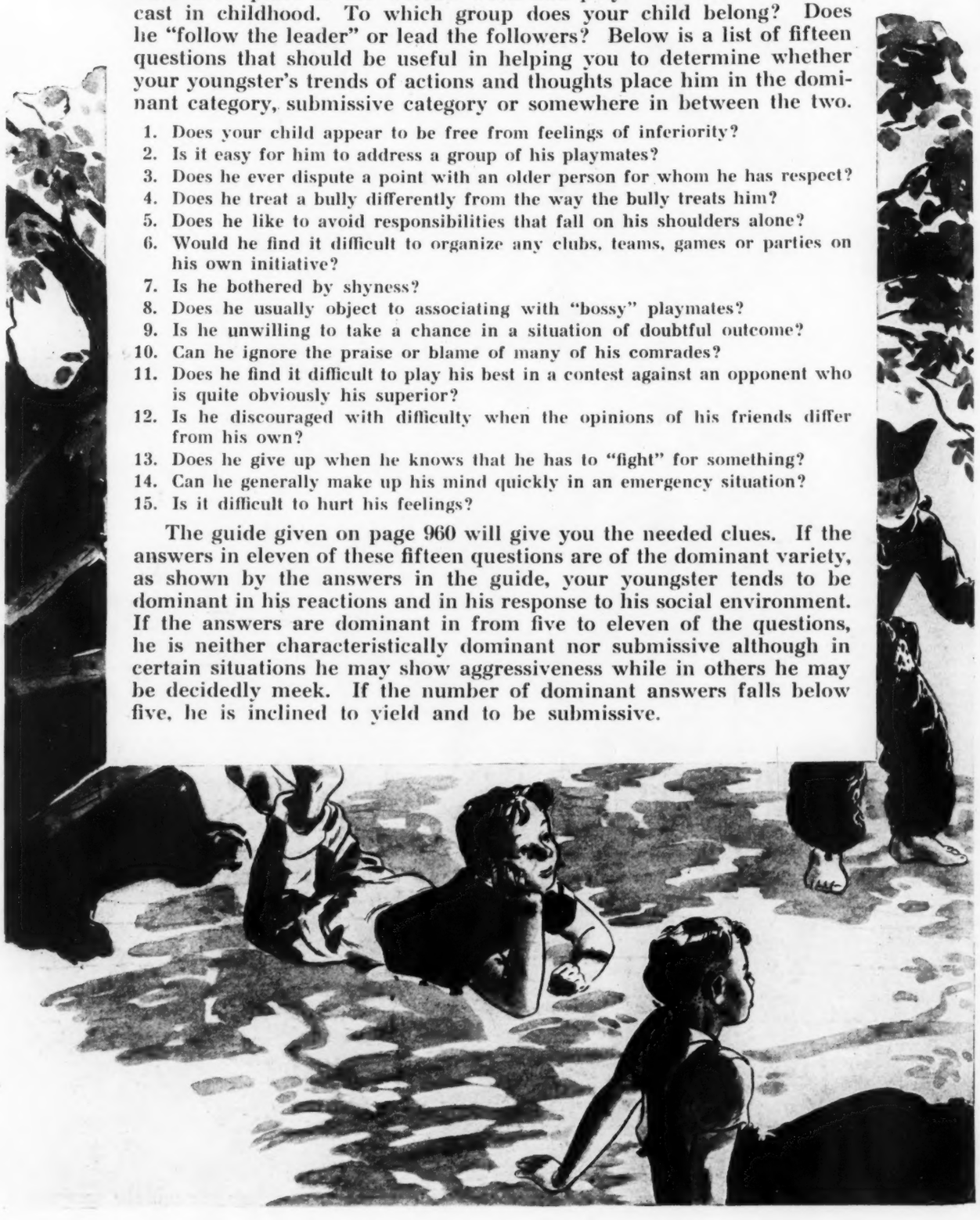
THE EARLY AMERICAN INDIANS MAY HAVE BEEN MASTER ARROW MAKERS, BUT THEIR BOWS WERE USUALLY PRETTY BAD.

Leader or Follower—

SINCE time began, there have been leaders and followers—masters and minions—the aggressive and the submissive. Both groups have their place in the world's work and play. For both the die is cast in childhood. To which group does your child belong? Does he "follow the leader" or lead the followers? Below is a list of fifteen questions that should be useful in helping you to determine whether your youngster's trends of actions and thoughts place him in the dominant category, submissive category or somewhere in between the two.

1. Does your child appear to be free from feelings of inferiority?
2. Is it easy for him to address a group of his playmates?
3. Does he ever dispute a point with an older person for whom he has respect?
4. Does he treat a bully differently from the way the bully treats him?
5. Does he like to avoid responsibilities that fall on his shoulders alone?
6. Would he find it difficult to organize any clubs, teams, games or parties on his own initiative?
7. Is he bothered by shyness?
8. Does he usually object to associating with "bossy" playmates?
9. Is he unwilling to take a chance in a situation of doubtful outcome?
10. Can he ignore the praise or blame of many of his comrades?
11. Does he find it difficult to play his best in a contest against an opponent who is quite obviously his superior?
12. Is he discouraged with difficulty when the opinions of his friends differ from his own?
13. Does he give up when he knows that he has to "fight" for something?
14. Can he generally make up his mind quickly in an emergency situation?
15. Is it difficult to hurt his feelings?

The guide given on page 960 will give you the needed clues. If the answers in eleven of these fifteen questions are of the dominant variety, as shown by the answers in the guide, your youngster tends to be dominant in his reactions and in his response to his social environment. If the answers are dominant in from five to eleven of the questions, he is neither characteristically dominant nor submissive although in certain situations he may show aggressiveness while in others he may be decidedly meek. If the number of dominant answers falls below five, he is inclined to yield and to be submissive.



which will your child be?

By HYMAN GOLDSTEIN

WHEN TWO supposedly "equal" children meet in face-to-face relationships there usually ensues conflict, which may be either hidden or obvious, because two individuals are so rarely sufficiently alike as to bring about a perfect harmony of responses. A "victor" and a "vanquished" emerge from these social interactions. The interest of the "victor" dominates. The "vanquished" yields and accordingly is dominated, although not always against his will or desires.

Some children from infancy show this characteristic dominance in stimulating, controlling and determining the behavior of other children. Others are incapable of leading and are content and willing, even anxious, to follow the plans of the more aggressive and to fall into step with the greatest number. They are submissive and yielding. The former ultimately grow up to become our leaders of men in all new endeavor, which may or may not be progressive, whereas the latter become the average run-of-the-mill citizens who find a certain security in obscurity, who do not want the limelight in any form or shape but merely want to look on from the depths of the shadows. For them mass thought and action offer the opportunity to participate in social events.

Since this ascendant-submissive behavior remains fairly constant to a large degree throughout an individual's lifetime, it may be said with some assurance of certainty, "Once a leader, always a leader." If 12 year old Johnny is able to convince his playmates by the force of personality, intelligence or sheer harangue that they ought to play follow-the-leader and that he should be the leader you may be sure that 40 year old Johnny is likely to wield the same kind of influence among his more adult friends. It does not matter much

whether it is a game of leap-frog or a meeting at the lodge room. Just as long as individuals meet, just so long will some of them assume characteristic levels of ascendance while others almost instinctively will adopt submissive attitudes.

Since it has been recognized that ascendance and submission are two traits that start to manifest themselves in early childhood, that they represent different types of adjustment and provide different motor channels for the discharge of energy, various tests have been devised to measure these traits. Not only do these tests give us knowledge of the individual's personality and his relation to leadership, but they also render valuable assistance in the matter of vocational guidance and industrial placement, particularly in the case of the adolescent confronted with the acute and ever present problem of the choice of a career.

It is only by studying the child's reactions to social situations that we shall be able to know and foretell whether he is likely to be a leader or a follower ten years hence.

Just as we recognize that there is some good in the worst of children and some bad in the best of them, we must also recognize that because of incomplete integration of the various personality traits some dominance may appear even in the child with the most submissive personality; whereas quite often a truly aggressive and forceful youngster may surprise us with a show of meekness that almost approaches whining. As the child becomes older the personality traits become more integrated and coordinated, so that the predictability of his behavior in a social situation becomes greater. In other words, he begins to acquire a certain individuality that one more or less expects of him in a given situation.

Many attempts have been made to determine just what makes one child dominant and another submissive. These attempts have studied the individual and his particular environment. In general, it has been reported that the short individual may be just as dominant (or meek) as the tall one; that fat youngsters, as well as skinny ones, can be, and usually are, aggressive or otherwise as the occasion demands, and that the brighter the child, the more will he be inclined toward submissiveness, whereas the extroverted youth generally shows good evidence of being able to dominate and lead his companions. A recent finding seems to indicate that the more dominant the individual, the more rapidly does he read and write but, strangely enough, the more slowly does he walk!

While dominance in children may be suggestive of future leadership it does not necessarily follow that such will be the case for any particular child. Leadership among men, while dependent on dominant traits probably established in early childhood, leans heavily on other personality traits, such as intelligence and sociability and on the appropriate environmental situations which make the assumption of the role of leader favorable. It must not be forgotten, however, that traits of dominance used for selfish motives may easily lead to the characteristic roles of dictator, demagogue, gangster overlord and even browbeater of employees and wife.

The behavior of the adult toward persons has its chief origins in the behavior of the child toward persons. It has been found that certain children use a great variety of methods to attain their ends. By the age of 3 some children have developed and nursed various devices, such as exhorting, whimpering, commanding or begging, to meet the various situations. In other children there is noted the consistency of particular methods. These children have a relatively fixed approach that is constant for the child in question. In all cases the child responds to a learning situation. He learns to use those devices that have proved to be successful in his own particular case in gaining the things that he wants from his parents, his companions or his environment. Where a whining and submissive attitude is effective in meeting a social situation of the home it is fostered and developed and is certain to be tried out in the early school experience of the child. However, it may well be that in another home this yielding and submissive attitude may prove totally ineffective as a response to a social situation because it is thwarted and rebuffed at its very beginning. The child will therefore quickly eliminate it as an effective means to gain his ends. The responses that have proved effective in childhood and that, therefore, have been learned and fixated are used time and again in adolescence, early youth and manhood even when entirely different responses or methods of approach might appear to be much more effective. The responses in childhood that gain wanted toys or candy or even a smile tend to become the more integrated responses later in life that are used in an attempt to get a salary raise or to win a girl or to make friends.

The child meets a social environment that is ever changing. He reacts with behavior that is the product of many factors, such as his innate equipment, his degree of imitation and adherence to precedent and example and his degree of conditioning to social situations in which some of his responses have been rewarded and thereby encouraged while others have been punished and thereby inhibited. Where dominance will succeed for one child, submission may succeed for another. Each type of behavior, ascendance or submission, is merely a different means of securing the common end, social adjustment.

The Plague of Youth

By INIS WEED JONES

FOR GENERATIONS, boys and girls have watched the fresh clear complexion of childhood become blotched and pimpled just at a time when they are most conscious of their personal appearance and concerned about what people think of them. Bewildered, they ask what to do about it.

"It's only acne," they are usually told. "There's nothing you can do except outgrow it."

Let it be said at once that acne does *not* have to be outgrown. Doctors know the cause and cure of it. But most cases are still left to the tyranny of time because acne more than any other ill, with the exception of insanity and the social diseases, has been surrounded by an atmosphere of ignorance, sex superstition and prejudice. It is one of those disorders which "just isn't talked about"; and the news which would restore the morale of many youngsters travels slowly—to the enrichment of "patent medicine" venders and charlatans.

Nearly 4 million boys and girls in the United States have acne. This total may strain credulity; but if you stand by the entrance to one of our large New York high schools and watch several thousand youngsters come rushing out into the sunlight you'll observe many cases of this adolescent blotching.

"We have over 4,000 boys in the Textile High," says David Alpern, their health director, "and from 15 to 20 per cent of them have acne. That's 600 to 800 boys. We tell them what to do, and half of them overcome the difficulty themselves. Those are the easy cases. The other half require medical care. But that's just what a lot of them don't get. They can't get jobs, and they feel terribly about the way they look."

Employment directors, probation officers, mental hygienists and psychiatrists, those who deal with the damaged product, stress in no uncertain terms the havoc wrought. It is caused not alone by the consciousness of being repellent—though that is hard enough to bear—but quite as much by our censorious beliefs about why one has acne.

Part of the cure is to rid the minds of youth and their critics of these false ideas.

Many fear that the trouble is infectious. Often the blotches do become infected; but this is only with a common germ that is present on all faces—yours, mine, everybody's—and ordinarily resisted by the normal skin.

Acne is not transmissible to others.

The most common belief against which the youngster must contend is that if he has acne it is because he is not clean. Most of these humiliated boys and girls agonize over their appearance; yet they get scant credit. One fastidious woman exclaimed, "Why, I didn't know *nice* people had acne any more!"

Little subdebs and boys in the most exclusive preparatory schools have it as well as those who live in squalor and dirt. Acne is no respecter of persons. It tends to run in families but is more frequent and works more harm to the underprivileged simply because living conditions are harder and knowledge of what to do is even less generally understood.

"It's bad blood working its way out" is the one kind explanation; but in a bad case of pustular acne it's no help in keeping the chin up to feel that one's blood is in an equally loathsome state. This notion is of course a hangover from the days when patent medicine manufacturers made millions by selling their "blood purifiers" for everything from cancer to St. Vitus' dance. Yet this is the explanation still given by many school teachers to their questioning pupils.

One can have good blood and still have acne.

Outrageous sex superstitions about the cause of acne still prejudice society and prey on the mind of youth. Some parents may deplore their publication in the belief that their acne-plagued child would never hear them. But they are widely circulated among those with little education and, by "the grapevine telegraph," reach many young ears on all social levels. It is these superstitions, and the way they are circulated, which do the worst harm to sensitive youngsters.

Because acne follows hard on the heels of puberty with its beginnings of the sex urge, facial blotches came to be considered telltale evidence of masturbation.

This superstition still continues to outrage pride and self respect. A case in point is that of a 16 year old high school boy who came to one of his teachers last winter for denial of what he'd just been jeeringly told was the cause of his acne. There were tears in his eyes and voice, but the set of his mouth was resolute. It took three teachers and a doctor to break down his determination to leave and go where no one knew him.

A social worker tells of an incorrigible boy of 14 to whose defiance of standards "The Welfare" had no clue until they offered to help him get rid of his acne. "Gee, if I could get

that signboard off my face!" He'd been striking back at a world that had been casting the evil eye on him for something that was not his fault.

It should be made crystal clear that children who do *not* yield to this impulse have acne and that many children who do, have peaches and cream complexions.

Acne bears no relation to masturbation.

Another ancient fear, which the idea of "bad blood" does nothing to lessen, is that acne has some relation to syphilis, either inherited or acquired. Skin troubles seem always to have been suspect. This was so in the biblical days of leprosy and even more true after the spread of syphilis over medieval Europe. This incertitude was long reflected in medical schools as well.

Acne does not resemble the lesions of syphilis.

Today when the spirochete of this disease may be detected under the microscope this particular specter can be laid—but not so easily the fear of one's half-informed contemporaries.

Now is it any wonder, when youth must bear the onus of all these false beliefs, that they come to feel unliked, unloved, unwanted? Continued blight of the social impulses, just when they're ready to grow, leaves most of those with severe cases with a profound feeling of inferiority that is never entirely overcome. To be robbed of the most invaluable weapon in the whole armament of youth, faith in oneself, is a greater handicap than to lose an arm or a leg. Outraged sense of justice makes rebels of some. Endless pricks and hurts cause still others to go through life with the proverbial chip on their shoulder. And numbers of the most trying intellectual snobs are the product of an acne-embittered youth. Despair, in extreme cases, begets a suicidal attitude. And occasionally there's a mental crack-up from being made to feel like a social outcast.

What then, does cause these unsightly eruptions? Many factors may contribute to a stubborn case of acne; but it is primarily due to the fact that during adolescence, with its rapid and often uneven growth, the functions of the skin do not always keep pace with each other. When the minute glands in the skin, on face, neck, chest and shoulders, suddenly begin to speed up production faster than the skin can get rid of it, the oil thickens and clogs in stubborn blackheads that can't be gotten out by ordinary

NEARLY FOUR MILLION BOYS AND GIRLS IN THE UNITED STATES SUFFER FROM ACNE. THOUGH DOCTORS KNOW ITS CAUSE AND CURE MOST CASES ARE LEFT TO THE TYRANNY OF TIME, MEANWHILE CAUSING DEEP UNHAPPINESS.

means. Then they push up in angry points and deep lumps, and that is acne. Thus what is designed to make us beautiful, temporarily makes us ugly.

Why do these two functions of the skin fail to keep pace with each other? We've all read that the endocrine system of glands has much to do with our growth and health, though we really don't know much about it yet. But every old-wife does know that at puberty when sex characteristics begin to assume importance the body experiences a spurt of development dubbed "the awkward age."

The glands that participate in this scramble to reach maturity—the thyroid, pituitary, adrenal and procreative glands—may bring about all sorts of growth disparities in the bones, organs, muscles and skin.

It's the same in acne. The glandular activities controlling the skin's oil production are working faster than those responsible for the skin's ability to handle its oil supply.

Tests show that 70 per cent of all children have blackheads, but they cause acne only when they are unmanageable. Most cases are mild and of short duration; some last until maturity,

and a few persist until middle age. But when the body does catch up with itself and the functions of the skin synchronize once more, the skin again becomes clear. Admittedly the results of this glandular imbalance make the person no joy to the eye; but they should not make him an object of aversion.

Finally, how does medical skill now check acne and save youth from all this needless psychologic damage? First, physicians tell us that acne should be treated at the very outset, while it's still easy to correct. This is now done in a New York state institution for children and with the happiest results. There is, at present, not a case in the whole school. Sooner or later, however, the doctor in charge will no doubt find one that resists treatment and does literally have to be outgrown, but these instances are rare.

Most doctors get their cases only after they have become serious and often only after irreparable scarring of the face. Even so, the percentage of cures is high, from 85 to 90 per cent! Correction takes several months, usually four, and stubborn cases take longer.

It's of first importance to choose a doctor with the habit of mind that attacks a problem from all angles, for acne may be complicated by infected teeth or tonsils, nutritional disturbances or faulty hygiene.

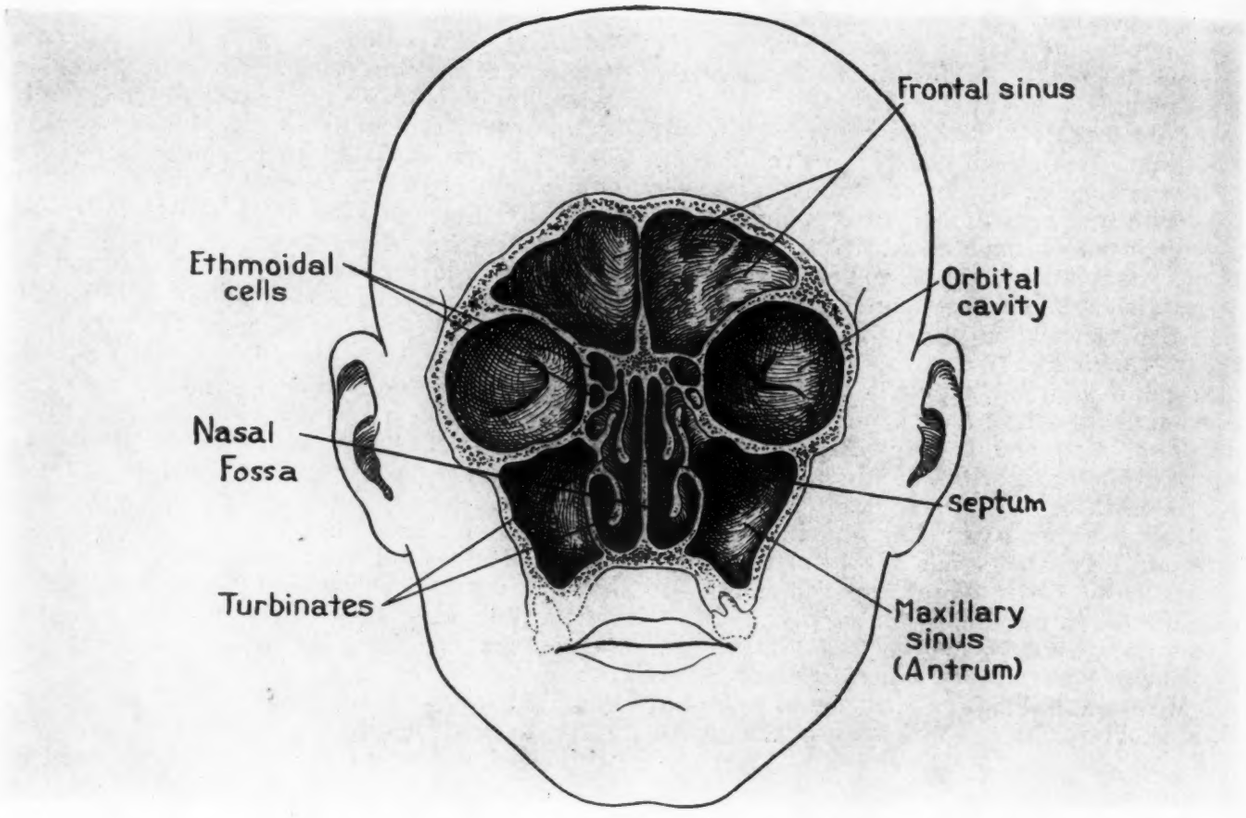
The following methods of correction are now variously combined by both family physicians and skin specialists (dermatologists):

1. An incredible amount of face washing by a technic designed, not for ordinary cleanliness, but to help get rid of the excess oil.
2. Improvement in general health and living conditions.
3. The use of ultraviolet ray and x-ray treatments.
4. Technics for getting around or controlling glandular imbalance.

The first two mentioned, in which the doctor requires cooperation, are the ones by which half of those high school boys are able to overcome their acne.

Many doctors advise lathering and massaging with the highly alkaline green soap or, if this proves too strong, with castile. For sensitive skins, some advise compresses of warm wet towels instead of strong soap. After either of these procedures most doctors say, "Wash first with warm water and then with cold." Many recommend this routine five times a day or, if that is not feasible, repeated twice in succession both morning and evening. Concluding this treatment, some prescribe either the application of alcohol or a lotion designed to dry and peel the thickened skin so that the pores can work better. The lotion must be fresh.

A doctor prefers not to leave to the patient the extraction of blackheads, for the bruising from hard pressure only *(Continued on page 956)*



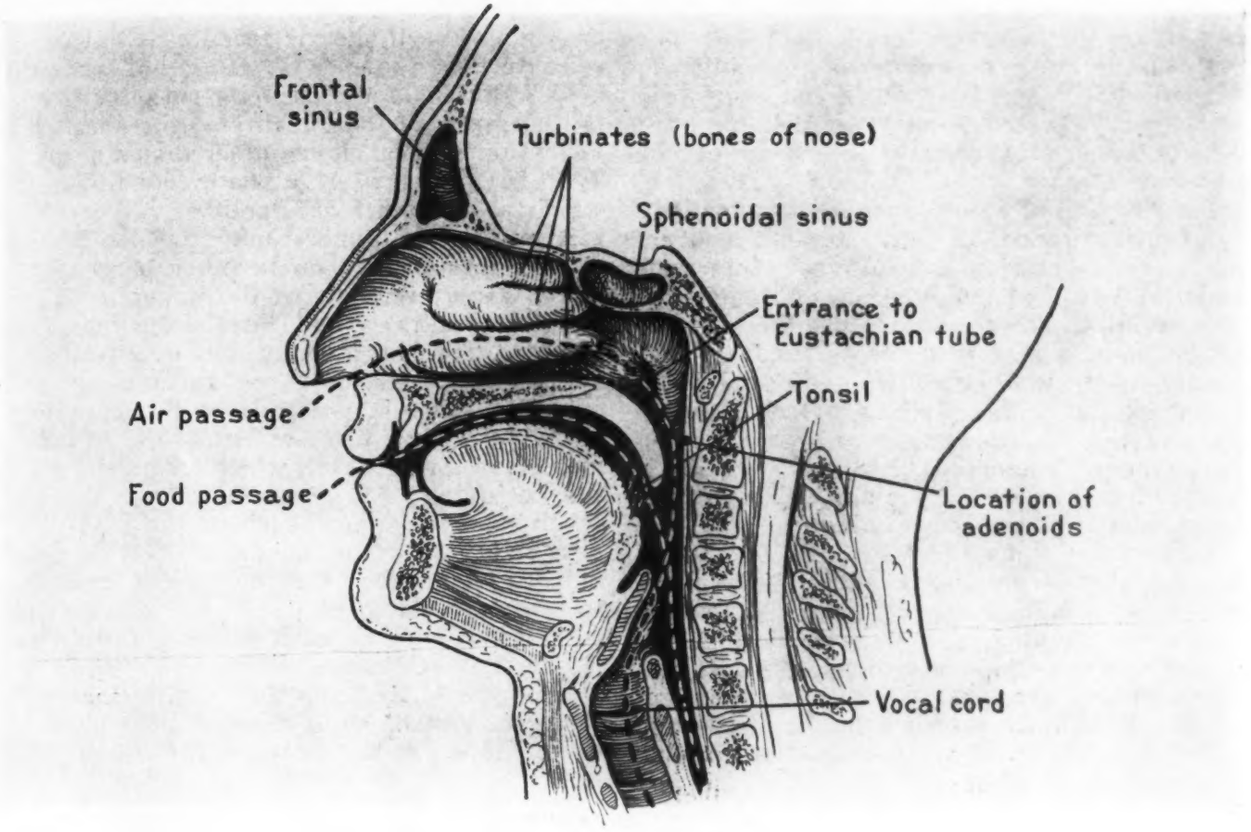
"CAN 'SINUS' BE CURED?"

By Louis M. Pearlman

"CAN 'SINUS' BE CURED?" This is a question commonly asked of the physician. Usually it follows the simple statement, "I have sinus." Both the question and the statement indicate the prevailing lack of understanding of the nature of the nasal sinuses and their undeserved reputation for being incurable when infected.

What is a sinus? Sinus is not a disease; it is merely a space. The term "sinus" is frequently misused to imply a disease or an inflammation of the sinuses, a sinusitis. As a matter of fact the sinuses of the nose are normal cavities of the human skull. These are called "nasal" sinuses to distinguish them from other sinuses which exist in various parts of the body. The nasal sinuses are a group of irregularly shaped cavities in the facial bones of the skull. They are connected with the nasal passages by small openings. The sinuses vary in size, shape and number in different individuals. These variations are so distinctively marked that a suggestion has even been made to substitute x-ray pictures of the sinuses for fingerprints as a means of identification. The sinuses have definite functions and are not present merely to cause trouble. They lighten the weight of the skull and give resonance and quality to the human voice, especially if the voice is properly "placed." They also aid in the important function of conditioning the inhaled air by warming and moistening it.

The sinuses are extensions of the nasal passages from which they developed. Only one set or group of sinuses, the ethmoids, is present at birth; all the other sinuses develop after birth from little depressions located in the nasal passages. With the development of the skull in childhood these depressions enlarge and form cavities or sinuses within the bones. The sinuses are named after the bones in which they are located. Thus they extend into the forehead above, forming the two frontal sinuses, and into the cheek bones on each side, forming the two maxillary sinuses, known also as maxillary antrums. Posteriorly they reach into the sphenoid bone to form the two sphenoidal sinuses. At the inner side of the eye sockets there are rows of small sinuses known as the ethmoid cells. The sinuses are separated from the brain, the eyes and the optic nerve by single layers of bone. Because of their proximity to the vital structures the sinuses occasionally assume extreme medical importance.



The sinuses develop from the nasal passages with which they are connected by means of small openings. The nasal passages, or fossae, are much more extensive than is ordinarily realized. They extend from the nostrils to the throat and from the cranial cavity above to the mouth below. They are completely separated from each other by a thin partition of cartilage and bone known as the nasal septum. The nasal passages are the channels through which the sinuses ventilate and drain. They are also the means of access for medical or surgical treatment of the sinuses. Any obstruction of these passages, such as a deflected septum, interferes with the normal ventilation of the sinuses, predisposing them to disease. This accounts for the frequency with which sinus diseases accompany nasal obstructions. The nasal passages are covered by the outer part of the nose, which forms the external lid of the nasal fossae. Injuries to the exterior of the nose often bend or break the nasal septum, producing obstructions of the nasal passages. Whatever distinction the exterior may have, it derives from its central location on the face—sometimes a thing of beauty—but its function in relation to the interior of the nose is merely to serve as a cover.

The walls of both the nasal sinuses and passages are lined with the same membrane. This membrane is well adapted for the performance of the nasal functions. It contains numerous single cell glands for the secretion of mucus and is therefore called mucous membrane. The rich blood supply circulating through it warms and moistens the air as it is inhaled through the nose. Since the membrane is one and the same for the nasal passages and the sinuses, any inflammation of the nasal passages readily spreads to the sinuses. A severe "cold in the head" is simply an infection which involves the mucous membrane of both the nasal passages and the sinuses. The excessive amount of discharge that results from such an inflammation is due to the large surface of the mucous membrane lining the nasal passages and sinuses. This surface is about equal in area to that of the skin covering the entire face.

In contrast to the mucous membrane, with its protective and efficient functioning, the sinuses are handicapped by the inadequacy of their openings. Each sinus has one small opening, and it is sometimes necessary to enlarge it or to make additional openings for the purpose of ventilation and drainage. The openings of the sinuses are so situated that most sinuses cannot be emptied while the body is in an erect position. This mechanical imperfection retards drainage, thereby aiding the development of sinus trouble. The different positions one naturally takes when lying down are favorable to the emptying of the sinuses. When one lies on the left side, the right antrum is emptied; when one lies on the right side, the left antrum is emptied, and when one lies face downward, the sphenoidal sinuses are emptied. This is

one of the reasons why rest in bed is an excellent way to treat a severe cold in the head. The best time to apply that ounce of prevention to sinus disease is precisely during an acute cold since frequent colds, if neglected, are the most common cause of chronic infections of the sinuses.

The function of a sinus opening is to ventilate and, during periods of inflammation, to drain the sinus. Occasionally, however, infectious material is forced into the sinus through this very opening. This occurs when the pressure in the nose is greatly increased, as in violent blowing of the nose or in diving, especially into water polluted with infectious material. Infections of the middle ear are also produced in this manner. Susceptibility to such infection is further increased by fatigue and chilling of the body from prolonged swimming.

To keep the sinuses in a healthy condition it is essential that continuous ventilation be maintained through their tiny openings. If for any reason the opening of a sinus is clogged, the sinus becomes sealed and is deprived of its normal supply of fresh air. The little air that it contains is rapidly absorbed by the circulating blood, and a partial vacuum is thus formed. The mechanical effect of this vacuum is similar to that observed when "cupping" is applied to the skin. Suction, or drawing, occurs within the sinus, causing the familiar "vacuum" sinus headache. If normal ventilation is not established at this stage, the continuous suction of the vacuum causes congestion and swelling of the mucous membrane and promotes the formation of mucus in the sinus. The vacuum also draws serum from the blood, and the sinus becomes partly filled with a mixture of mucus and serum. This fluid is a favorable medium for the growth of bacteria and if allowed to remain is soon invaded by the germs which are normally present in the nasal passages, thus infecting the entire sinus.

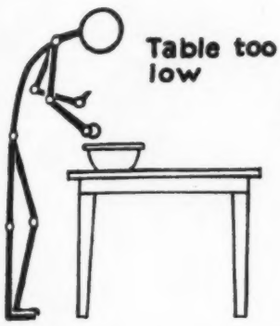
Can sinus disease be cured? Decidedly yes! It must be clearly understood that the nasal sinuses are subject to a variety of unhealthy conditions and diseases just as any other parts of the body. No one would ask, "Can stomach or skin disease be cured?" Obviously, that would depend on the nature of the disease. This is equally true of the sinuses, which are subject to many abnormal conditions and diseases. Every severe cold in the head involves an infection of the sinuses. The frequency with which these infections clear up is an indication that the sinuses really have great recuperative powers.

Mechanical obstructions of the nose, usually produced by extreme deflections of the nasal septum, are important factors in the causation of sinus disease. Hypersensitivity or allergy of the nasal mucous membrane to a number of substances that may be in the atmosphere may also affect the sinuses. The most common example of such allergic reaction is hay fever, caused by the presence of certain pollens in the air. Individuals are similarly sensitive to certain elements of food, justifying the adage that "one man's meat is another man's poison." This is true also of climatic conditions, to which people react differently.

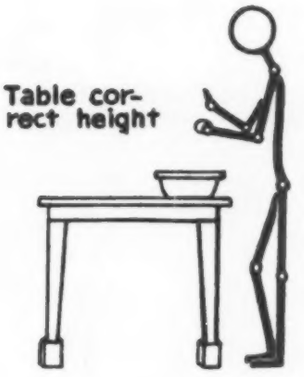
A variety of tumors may develop in the sinuses just as they do in other parts of the body. Decay in some of the upper teeth frequently penetrates and infects the maxillary sinuses. The sinuses may also be affected by systemic diseases, such as tuberculosis and syphilis. This is particularly the case with acute infectious diseases, such as influenza, measles or scarlet fever, which frequently mark the beginning of a sinus infection. Diseases involving vital organs, such as the heart, kidneys or thyroid gland, may also affect the nasal mucous membrane. Any number of these factors which tend to produce sinus disease may coexist and must be located before satisfactory results may be expected.

Thus it is obvious that fads and panaceas for the treatment of sinus disease must prove as disappointing in the future as they have in the past, since the causes of the trouble must be identified in each case and the treatment individualized accordingly. In view of the frequency and variety of sinus disorders, it may safely be said that the nasal sinuses recover from disease as often as other parts of the body do, if, indeed, not more often.

The unhappy belief that diseases of the sinuses are incurable is an inheritance from the past, when the causes and nature of the different types of sinus disturbances were not thoroughly understood and when nasal surgery was still in its early stage of development. Radical operations were then frequently performed without satisfactory results. The present trend is toward more conservative treatment, tracing trouble to its sources and eliminating them before they are permitted to develop into chronic disease. Recognized local and systemic remedies are now effectively used in the medical treatment of various types of sinus diseases. Stress is laid on increasing the resistance of the individual through hygienic and therapeutic measures. Excellent results are frequently obtained from minor surgical measures by removing nasal obstructions and reestablishing normal ventilation and drainage of the sinuses. In only a small number of cases does major surgery become necessary. These include a large percentage of cases in which the conservative medical or minor surgical measures have been originally neglected. However, even these cases respond favorably to the finer surgical technic of today. There is no longer any valid reason for the pessimism implied in the question, "Can 'sinus' be cured?"



Outwitting Homemaker's Fatigue



By LOU TREGONING

ARE YOU one of those homemakers who can outwit fatigue so well that you have time and energy to enjoy your family and an outside activity or two? If you are, you've discovered that it takes more than being a good cook and a good housekeeper or the ability to make pretty things to make a successful home—it takes managerial ability plus good health.

You'll admit that it is a full time job and as intricate as operating a business or factory but far more challenging, since you must be the manager, bookkeeper, buyer, cook, waitress, dishwasher, artist, nurse, telephone operator, counselor and a budgeteer of time, money and energy—and hold all the other positions as well. To be competent and maintain exuberant health you make plans for spending and saving, for accomplishing the week's tasks and for rest, as overfatigue is one of the homemaker's worst enemies.

Let's take stock of the causes of overtiredness, then plan to outwit it by making adjustments in personal well-being, household details and attitudes. Are you in love with this job of yours? If so, it is not going to be nearly as fatiguing, and your interest will act like the drafts of a furnace, while health and nutrition will determine the amount of energy you have. But don't overdo. There are as many causes of fatigue as there are rabbits in a magician's hat, and they are about as intricately related.

Personal happiness and welfare are so closely allied with plenty of rest, good nutrition and proper working conditions that health must come first in your plan of homemaking. Divide the heavier work among the days of the week and do the heaviest jobs in the morning, with lighter tasks in the afternoon. The schedule might look something like this:

Monday: Do light cleaning; sort the clothing for laundering; plan meals for Tuesday; get extra rest.

Tuesday: Do the laundry; clean the basement; lunch and rest one hour; bring in the clothes; prepare for ironing.

Wednesday: Iron, mend and put articles away.

Thursday: Do some special baking; rest a half hour; attend club meeting.

Friday: Clean; do some baking.

Saturday: Clean kitchen; prepare Sunday dinner; possibly shop and have time with the children.

Sunday: Family day.

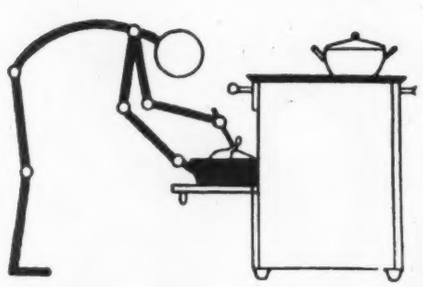
Rest an hour or at least a half hour each day, depending on the number of members in the family and on your general health. Now go over your plan, and decide what must be done, and release yourself from some tasks if it is for the betterment of yourself and the family. Omit the ironing of sheets, night clothes, knit underwear, tea towels and other articles that appear just as well without ironing. Make the children responsible for taking care of their

Lying down requires the least energy

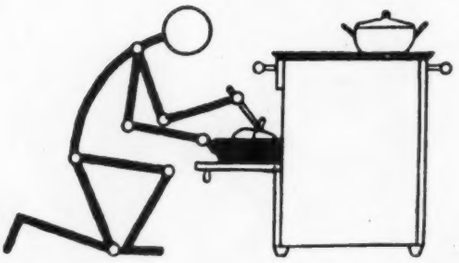
Sitting requires 4 percent more energy than lying down

Standing requires 12 percent more energy than lying down

Bending requires 55 percent more energy than lying down



Incorrect posture for low oven



Correct posture for low oven

Standing is fatiguing

rooms, making their beds, hanging up their clothes and putting away articles. Let them get the vegetables ready, and many other tasks should be their responsibility. Apply the old adage "A mother is not to be leaned upon but to make leaning unnecessary."

Are you up to normal weight? Do you eat enough of the right kinds of food so when you are doing heavy muscular work, such as laundering, you do not become fatigued easily? If you are underweight and tire easily, eat a light lunch between meals and a hot food at this time when doing heavier work. Physical exertion will bring on muscular fatigue, which is seldom dangerous unless overdone for a long period of time. The body needs the stimulation of circulation as occurs when one is physically active. Fatigue from mental activity alone is more harmful. The homemaker's job is particularly good from the standpoint of maintaining good health, as it involves both mental and physical activities.

Sugars, breads, cereals, crackers and other foods, referred to as the starches or the carbohydrate group, are necessary in the diet. These are converted by the body into a form of sugar called glycogen. When you are physically active, your muscles burn glycogen. Good ventilation of the home plays its part here, as the oxygen which you take into your lungs is carried by the red blood cells and acts as a draft in burning the glycogen. The oxygen-carrying power of the blood depends on the amount of iron in the blood; so the greater the number of red blood cells, the larger the amount of oxygen that can be carried and consequently the less fatigue resulting. This explains why one becomes fatigued quicker when one is anemic or has low iron content.

You burn oxygen rapidly every time you rush to the telephone, to answer the doorbell, spend an evening dancing or do a heavy household task. The muscles work harder and require more oxygen than the red cells can furnish; so fatigue sets in, although the muscles continue to work. Good ventilation will give you more oxygen; but it may take thirty minutes to regain the usual amount after moderate exercise. Humidity, or moisture, and the temperature of rooms are also important. The temperature should be between 68 and 72 F. and humidity between 40 and 60 per cent. An instrument which registers both is a good investment from the health standpoint.

Stair climbing consumes fifteen times as much energy as actual walking, so if the laundry is done in the basement, carry up two or three washers of clothes to hang out at one time. Have a place to stack articles that are to be taken upstairs during the week, and take them on a regular trip up instead of making a special trip. When the week's ironing and mending are finished, sort the articles to be taken upstairs, and take them all at once.

Fatigue may creep in from too little light or from too intense light. Does the sun cause a glare of light on your kitchen table? A tree or vine may correct this fault. Maybe you need an extra window for more light. At night the artificial light should not cast any shadows on your work, and if there is a ceiling light, use a 100 watt bulb with a fixture over it to diffuse the light. Get rid of all the shadows you can.

Your vitality and ability may be affected by the kind of clothes you wear. There should be no annoying shoulder straps which slip out of place, no tight girdles or clothes that hamper the movements of the body; have good clean hose every day, attractive comfortable dresses and properly fitted, low heeled walking shoes. Some one has said, "Have good shoes and a good bed; you are in one or the other twenty-four hours a day." It is claimed that women do not have the muscular strength of men; but they have greater stamina and resistance, perhaps as a result of the kind of clothing they wear. Men become fatigued more easily because of the 15 pounds of clothing they wear, and they suffer more from heat because of constricting clothing and excessive perspiration. Women now wear about 1½ pounds of clothing, are exposed to the sun's rays and are better physically and tire less easily.

Good daily elimination will help to outwit fatigue. Establish the habit of daily elimination at a regular time; drink enough fluid daily; eat meals at regular hours and include two vegetables and two fruits, one of which is raw in each class. A glass of warm water before breakfast will be helpful.

Sitting is more comfortable

All the previous factors may readily be adopted for your own well-being, unless you have poor health. If that is the case, consult a good doctor, and carry out his orders to the letter for it is up to you to get rid of poor health and get back to normal. Those of you who have good health should cherish it every day, and put forth every effort to keep it.

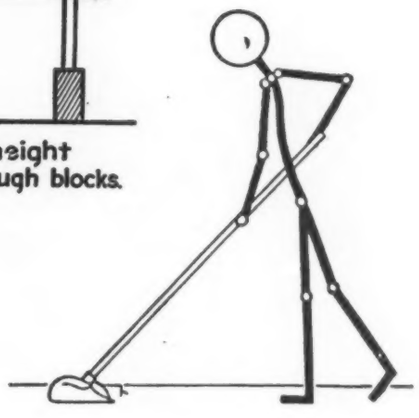
I have left posture for the last as it is involved not only in good health but in so many of your household tasks and apparatus. Lifting, stretching, bending, stooping, standing and sitting all day produce more fatigue than effective work. These factors have been eliminated to a great extent from industry in order to lessen fatigue and make employees more efficient. Many of you live in rented houses, or if you built one which you thought would be ideal you probably made some changes before you lived in it a week. But there are many simple inexpensive things you can do to the working areas to make your daily tasks easier and thrust fatigue into the background.

Experiments prove that lying down requires the least energy, sitting requires 4 per cent more energy than lying down, standing takes 12 per cent more and bending 55 per cent more. Household tasks don't lend themselves to the lying down position; but you can classify more jobs into the sitting and standing positions, which take less energy than bending. Acquire the habit of sitting when preparing vegetables, cutting foods or garments, washing dishes and ironing. At first you may think it is slower; but you will "strike your stride" as you practice. The standing jobs will be mopping, sweeping with a broom or running the vacuum sweeper, laundering, hanging clothes on the line and using the dust pan. The bending or stooping jobs will be composed of the regular dusting, picking up and cooking. All these involve bending or stretching, which take the most energy. How will you do them with the least fatigue?

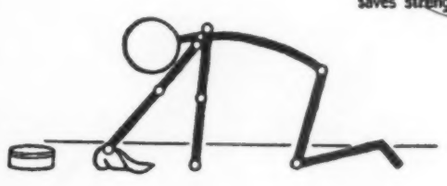
Practically all these jobs are concerned with proper working heights. The surfaces you will use most are the washer, the ironing board, the sink, the work tables for food preparation, the range and the cupboards. The best test for height is the one that *(Continued on page 937)*

Washtub too low.

Correct height
obtained through blocks.



Suitable equipment
saves strength.



Kneeling is fatiguing.

Fred G. Korth

MAGIC BULLETS

By DONALD B. ARMSTRONG

HAVE YOU EVER thought how great is man's love of magic; how persistently through all history he has sought magic shortcuts to attain his ends or to escape his ills or the penalty of his errors?

In no field is this more true than in that of medicine. Man has long searched for "magic bullets" that might be shot into his system, so to speak, and that would go directly to the affected part, attack the trouble-making influence and eliminate or destroy it, without injuring the body itself.

Announcements from authoritative medical sources during the last year or two have indicated that the safe and sure methods of treatment so long dreamed of show promise of becoming realities. I refer particularly to the astounding statements, made in medical circles and reaching the press from medical meetings, regarding the newly discovered drug known as

prontosil, with its allied compound or derivative, sulfanilamide. Certain leaders in the field of medical research have heralded this discovery as perhaps the greatest single event in the history of the treatment of disease by chemical means—as an outstanding landmark in this so-called chemotherapy. Whether or not these initial appraisals of the importance of sulfanilamide turn out to be somewhat overenthusiastic, there is no doubt regarding the great progress being made in the control of disease by the use of drugs and chemicals.

This is by no means a new field of medicine. One of the oldest and most conspicuous of all the hopes recorded in medical history is that of finding chemical agents that will destroy disease without injuring the patient. Physicians of ancient Egypt had a drug recipe for practically every Egyptian ailment—usually, of course, concocted on the basis of guesswork or shrewd observation. Further efforts to establish chemical medication took place during the Middle Ages, but in reality it was not until the last century that problems of chemical treatment in disease were approached on a rational basis; that is, in accordance with scientific formulas and accurate reasoning, with experimentation in the laboratory. Nevertheless, by experiment and by chance, certain great discoveries in the chemical treatment of disease were made prior to this time.

Perhaps the most outstanding of these hit-and-miss discoveries was the use of mercury for the treatment of syphilis. The earliest historical documents show that mercurial ointments were used in China as long ago as 1100 B. C., perhaps as a remedy for syphilis. In Europe this disease first appeared in epidemic form in 1493. A few decades later, Paracelsus, the superalchemist of the time, introduced into medical use a number of metallic compounds, including mercury. The physicians of the sixteenth century, seeking remedies for syphilis, employed mercurial ointments and found that in many cases they lessened the severity of the symptoms or cured the disease itself.

Another instance of these chance findings was the discovery in the seventeenth century of quinine for the treatment of malarial fever. Cinchona bark, of which quinine is the active principle, got its name from the fact that the first European to be treated with it was the second wife of the fourth Count of Chinchon, stationed with her husband in Lima, Peru. From another South American country, Brazil, came a third specific, ipecacuanha root, which had long been used by the natives as a remedy for tropical dysentery and which was introduced into France in 1672 by Dr. Le Gras. Later Louis XIV paid a sum equivalent to $4,000 for the formula because of the rapidity with which it cured his son, the dauphin.

But not till the nineteenth and twentieth centuries, with the establishment of the sciences of organic chemistry and bacteriology, did there appear for the first time a real opportunity for making chemotherapy an exact science. When it was discovered that microscopically small plant or animal parasites or viruses are responsible for infectious diseases, medical scientists set to work in real earnest to find chemical substances which would "poison the parasite as much as possible while poisoning the animal or human host as little as possible."

In this new field of genuine science the first great triumph was won by Paul Ehrlich in the discovery of arsphenamine. For a long time, Ehrlich experimented with chemical combinations, especially the organic compounds of arsenic, in the hope of finding a more rapid and certain method of treating one of mankind's greatest scourges, syphilis. After preparing and trying out 605 different compounds, each one of which possessed more disadvantages than advantages, Ehrlich at last discovered number 606, a substance derived from arsenic which proved to be exceedingly poisonous to the causative agent of syphilis and little poisonous to the patient infected with the disease. This compound was first used in 1910 in the treatment of syphilis and remains to this day a valuable and satisfactory specific.

In the twenty-five year period following the discovery of arsphenamine, probably the most notable achievement in the field of specific medication was the development of chaulmoogra oil for the treatment of leprosy. Treatment with this oil has helped to rob this ancient disease of many of its terrors. However, it was not until 1935 that a great discovery, said by some authorities to eclipse in importance Ehrlich's development of arsphenamine, was made in the field of chemotherapy. I allude, of course, to the discovery of sulfanilamide.

Sulfanilamide, the active principle of prontosil, was first announced under the latter name in a medical journal in 1935 by Prof. Gerhard Domagk of Germany and was later experimented with by French, English and American investigators. It was soon evident that the presentation to the medical world of this drug was an event of remarkable significance.

For a long time, medicine has recognized that among the outstanding bacterial enemies of mankind are the streptococci, and in this family of vicious organisms there have been none more destructive of human life than the so-called hemolytic streptococci, or those that invade the blood stream and destroy the blood cells circulating therein. These organisms have been responsible for many serious and fatal conditions, notably puerperal or childbed fever, erysipelas, streptococcic sore throat and streptococcic septicemia, or "blood poisoning"; and man has until now been relatively helpless in

defending himself against their attack.

One can well imagine the astonishment and enthusiasm of the research workers, therefore, when their results, following experimentation with mice and other animals, enabled them to announce that at last in sulfanilamide there had been developed a successful method of treating hemolytic streptococcal infections not only in animals but in man. In maternity hospitals it was indicated that mothers hitherto doomed when infected with puerperal fever might now, in many cases, experience recovery in two or three days after treatment with this drug. One of the first patients treated in the United States with the sulfanilamide preparation known as prontosil was an 8 year old girl desperately ill with erysipelas. The patient's own doctor had used every known resource of medical science to save her and had asked a physician at the Johns Hopkins University School of Medicine to try prontosil. Within eight hours the "red flame" of erysipelas stopped spreading on the girl's skin, and in thirty-six hours her fever left her.

Within recent months, investigators have shown that sulfanilamide is useful not only against the hemolytic streptococcus but also in the treatment of streptococcal meningitis and in the treatment of meningitis caused by the meningococcus. It has also been used with considerable success in the treatment of gonococcus infections and is not without promise in other diseases of an infectious nature. It is believed, though it cannot yet be proved, that the rather marked decline during the last twelve months or more in maternal mortality for certain large portions of the population may reflect the growing use in maternity wards of hospitals and elsewhere of these newly discovered drugs in combating puerperal fever and other streptococcus infections at the time of birth.

Of course, no therapeutic measure, so effective and potent as this, is without danger. The final test of any agent in medicine is: Is the drug likely to do more harm than good? Even if it kills the parasite, how much injury will it do the patient? For this reason the current studies of the poisonous effects of sulfanilamide are of the greatest importance. The drug sometimes causes such symptoms as dizziness, headache, nausea, weakness, jaundice and rashes, though these conditions generally seem to be controllable without endangering the patient. In other, less frequent cases, heavy dosage with sulfanilamide seems seriously to have affected the red or the white blood cells or both, with the development of dangerous conditions and with some fatalities. Apparently there are people who are particularly susceptible to sulfanilamide poisoning, and for this reason as well as because of its toxic effect in large doses for normal human beings it is extremely dangerous to treat onself with it or to have it used except under most careful medical supervision.

Yet, this is a great discovery and a most valuable remedy in the hands of competent physicians. Medicine is able to report to the people of the world a boon to mankind, perhaps almost unprecedented in its value as far as the field of medical chemistry is concerned. It is a product of the careful, painstaking search of science for ways to lessen pain and suffering and to conserve human life. It is a particularly encouraging event at this time when in so many parts of the world the forces of death and destruction threaten the very existence of man's civilization. It augurs well for the future of scientific medicine. Certainly, the development of sulfanilamide is by no means the final chapter in the story of chemical warfare against man's parasitic enemies. In laboratories in many lands, scientists are investigating other chemical substances, and from their work may come equally important, if not greater, instruments of defense against disease and premature death.

PARACELSUS

A sorcerer, a menace to the race,
Corruptor of the morals of the place,
A man in league with Satan's wiles, and one
Proposing crazy projects to be done,
A man so foolish that he even said
Without fresh air, mankind would soon be dead—
These are among the claims they used to throw
Against him some four hundred years ago.

A monument upon the public square
In Basel mutely stands today, to bear
The city's testimony to the name
That in its day had but reproach and shame,
The name of one the city banned. How strange
That Time and Death should work so great a change!
Honor the man who trod an untried way,
Marching alone, the vanguard of his day.

By Clarence Edwin Flynn

Speaking of "magic bullets" and such wizardry—we're not superstitious, but we do believe in a certain magic key that will open the door to fuller enjoyment of life. That key is Health. And what is Health? The American Medical Association and the National Broadcasting Company have arranged a radio dramatization to tell you all about it. For further details, see page 938, and be sure to tune in on Wednesday, October 19.

Keystone View

Left-handedness

By PAUL POPENOE

FOUR OR FIVE adults out of every hundred will state that they are left handed and will demonstrate the fact by writing, eating or throwing with the left hand only.

Inquiry, however, shows that the situation is more complicated than is thus described. For instance, some persons are naturally left handed but have learned to write with the right hand. When more complex movements are studied, involving both hands or both sides of the body, the picture is still less simple. If the manuality is named by the hand which is nearer the business end of the instrument, so that a man who places the left hand at the small end of a baseball bat and the right hand above it, nearer the middle, is called right handed, then it will be found that the majority of white people use broom or shovel left-handedly but bat right-handedly.

Hand and foot tend to go together, so that the hand used on the spade is an almost infallible determiner of the foot which will be used on the same implement.

Hand and eye likewise tend to go together, the right-handed person usually being right eyed as well. Special instruments are made to measure this, but for practical purposes the test of eyedness is made easily enough at home. Double up one fist with the index finger pointing freely. Raise the fist above your head, and imagine that it is a pistol. With both eyes open, bring this "pistol" down rapidly as if to fire instantaneously at some distant target. Now quickly shut first one eye and then the other, and note which eye is in line with both forefinger and target simultaneously. If you are properly lined up when your right eye is open and left eye closed, you are right eyed and probably right handed; if the left eye, on the contrary, is in line, you are left eyed and probably left handed.

That the correspondence between eye and hand is not quite complete will be testified by people who are poor shots with a gun because of a discrepancy at this point. If a man is right handed, can shoot only from the right

shoulder, yet is left eyed, he will have a hard time trying to become a sharpshooter.

Tests of strength of grip show that there is a complete series of transitions, from the man who is so strongly right handed that his left grip is extremely weak, through those whose grip is about equally good with either hand, to the pronounced left-handers whose right hands are of little value.

Thus the mere statement that a person is left handed or right handed means little unless qualified by many further details.

The right-handed person is accepted as normal. The world is arranged to suit his convenience, and the left hand seems to have been associated from time immemorial with bad luck or unpleasant ideas. "Sinister" tells its own story, as does the French word *gauche*. Omens appearing on the left were considered inauspicious; while among the Arabs, *yamin* meant either "from the right side" or "prosperity," and with the Hebrews, Benjamin, properly *Ben Yamin*, "the son of the right hand," was a name expressing the father's joy over an heir.

Nevertheless, as I have pointed out, there are many kinds of right-handers. Among these various possibilities, is there any standard or ideal? This question cannot be answered merely by yes or no.

It has sometimes been supposed that a bodily balance is the highest state, in which the individual uses the right hand singly but the left hand in batting or sweeping, this being supposed to produce, or to be the result of, a more symmetric bodily development. Such a situation is found most frequently among superior males—those of the highest intelligence—while the commoner situation, in which the individual bats right handedly but sweeps left handedly, is more usual among other males and among all normal females regardless of their level of intelligence.

Evidently, then, there is not only a difference associated with intelligence in the male but a somewhat consistent sex difference which, in the female, does not seem to be affected by moderate differences of intelligence, though it is affected by mental deficiency.

Among persons reported simply as left handed, males are nearly 50 per cent more common than females; but here again differences associated with intellectual level prevent one from making any broad statements. Several investigations have agreed in showing two or three times as many left-handed individuals among mental defectives as among the mentally normal; and left-handed girls are more frequent than left-handed boys among the subnormal, while the reverse is true of the mentally superior.

This tendency, moreover, seems to be graded roughly in accordance with the degree of mental deficiency. As one goes downward in the scale of intelligence, the superiority of the right over the left hand, as shown by gripping tests, decreases or is even upset by a stronger left hand; in other words, the relative strength of the left hand increases with decreasing intellect. This tendency is of course subject to many conspicuous exceptions.

Since the handedness is controlled from the brain, this condition is not surprising. As almost every one knows, only one half of the individual's brain is concerned in speech and other intellectual activities. Either side of the brain is capable of handling the job, but actually one does all the work and the other is, if not useless, at least largely unused, though it may be called into action if the more active side is damaged. The active side of the brain, which is definitely larger, is always on the side opposite to the individual's master hand; a right-handed person is using the left side of his brain.

This dominance of one lobe of the brain is a recent development in evolution and is a fundamental character distinguishing man from all other members of the primate order.

In lower mammals there seems to be neither asymmetry of the brain nor marked handedness. In the monkeys, one finds the beginning of handedness, without any evidence of it in the brain. Study of six rhesus monkeys, Macacus indicus, showed that several of them were quite ambidextrous, while others were markedly either right or left handed. After being trained to use the opposite hand they all retained this training, with the exception of one monkey which was at first completely right handed but which, four months after training to use the left, went back entirely to his right-handed habit.

Among the anthropoid apes the hemispheres of the brain are still approximately symmetric in appearance; but the bones of the right arm are usually longer than those of the left in the gibbon and orang utan, as they are in man; while in the chimpanzee and gorilla the left arm is longer. With this difference in bone length there goes a tendency to use one arm or the other, not so pronounced as in man, yet quite different from the ambidexterity of other mammals.

Where skeletal remains are found, the handedness of extinct peoples can be determined with a good deal of certainty by the relative size of the two sides of the skull, the length of the humerus and the heavier development of the shoulder blade, which accompanies the greater length and greater use of one arm. Pithecanthropus erectus, the apelike man whose remains were discovered in Java and who was imaginatively advertised a generation ago as "The Missing Link," was left handed.

These differences are not all apparent in the child at birth, but this does not mean that they

are not inborn, constitutional or determined by inheritance. The child's teeth are not conspicuous at birth, but no one questions that they will appear in due time and that they are a part of his native endowment. When every attempt was made to eliminate influences which might lead to the use of one hand in preference to the other, babies were found to develop handedness about the seventh month after birth, simply because it was "in them" to do so.

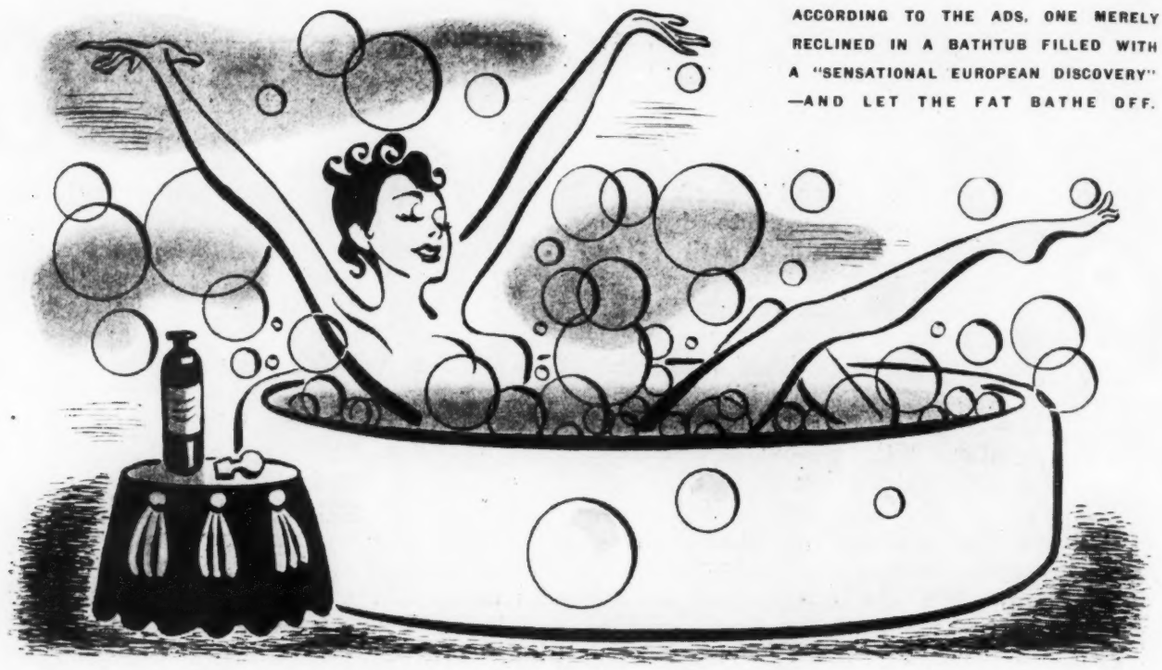
Symmetry and its deviations offer some of the most complicated and interesting problems of human biology. The face itself is almost always slightly asymmetric, and while this has been ascribed to lying on one cheek or other in the uterus, or later on the pillow, it is really only part of a larger deviation from the geometric pattern in which one half of the body would be the mirror image of the other. Similarly, most people show a slight curvature of the backbone toward the left in the breast region, toward the right in the small of the back. In the minority this is reversed.

The extreme of symmetry in the left-hander is represented by mirror writing; that is, writing with the left hand, from left to right on the page. Leonardo da Vinci's notebooks are the classic illustration. A canvass of more than 100,000 school children revealed only 42 mirror writers; hence the accomplishment must be considered extremely rare. Occasionally one encounters an individual who writes simultaneously with both hands, in the ordinary way with his right hand and reversed with his left.

The most extreme deviation from the normal and symmetric independence of the two sides of the body is furnished by those rare individuals who are obliged to move both hands or arms in the same direction at the same time. In one such case, if the boy held a pencil in each hand and wrote with the right hand, the left would produce a mirror image of the same words, and acute pain was caused if an attempt was made to move one hand while the other was held. If one hand was touched the sensation was felt in both *(Continued on page 952)*

Ewing Galloway

THE RIGHT-HANDED PERSON IS ACCEPTED AS NORMAL, AND SO THE WORLD IS ARRANGED TO SUIT HIS CONVENIENCE.



ACCORDING TO THE ADS, ONE MERELY RECLINED IN A BATHTUB FILLED WITH A "SENSATIONAL EUROPEAN DISCOVERY" —AND LET THE FAT BATHE OFF.

The Weigh of the Transgressor: II

By ROBERT A. KILDUFFE

"FAT CURES" and obesity treatments are literally legion, but no matter how much they appear to differ on the surface, they all have certain claims in common: Without exception, they all are presented as outstanding scientific achievements; they all work positively without any such uncomfortable adjuncts as diets; they are all entirely different from any other fat cure; none of them necessitates any disagreeable exercises, and they are all more or less expensive!

For instance, one absolutely brand new idea (of course, they are all brand new ideas!) works on the theory that fat oxidizes into water and that all that is needed to acquire a beautiful state of slimness is to throw off the water. Simple, isn't it? And the marvel of it is that the water may be removed easily, painlessly and even delightfully merely by smearing an ointment over the body, said ointment being procurable for the ridiculous sum of $10 for an 8 ounce jar.

It is ridiculous, for a fact, when you consider that the ointment in question consists mainly of petrolatum with a small amount of salicylic acid (added, perhaps, to make it difficult) and a little menthol to make it feel cool and smell nice.

This, of course, is a highly scientific method and presented, according to report, by "thoroughly experienced individuals," which can hardly be denied, for any one able to sell 8 ounces of petrolatum for $10 is decidedly experienced.

As is the case with all such marvelous methods, there is no dieting to be done. Certainly not! There is just one simple thing to be done after smearing on the ointment. That is to get into a hot bath for fifteen minutes and then wrap up in blankets for half an hour preparatory to emerging well on the way to looking like the Venus de Milo.

Oddly enough, if one took a hot bath and then wrapped up in blankets it would be somewhat remarkable if a profuse perspiration did not occur—with or without the ointment. And, as every athlete knows, the quickest way to "dry out" is to do just that sort of thing. But as every athlete also knows, the weight thus lost in perspiration is soon made up again by the fluids taken in as a result of the ensuing thirst or from absorption of moisture by the skin.

This "brand new" method, therefore, is nothing more than a home-made substitute for a Turkish bath with an extra $10 thrown in for good measure—and the benefit of the promoters.

The bath idea is by no means new and has been used in many guises. Remember when the little naked ladies used to gallop over the advertising pages, when they were not reclining in a bathtub filled with a "sensational European discovery" consisting of cornstarch, baking soda, borax and tartaric acid which bubbled beautifully when dissolved in hot water?

Women have long been addicted to the Turkish bath as a reducing measure because of the apparent weight loss produced—apparent because it is so soon and so easily made up again. But, to avoid disappointment, if you want to lose weight in a Turkish bath, don't drink heartily of water during the course of the bath.

Whether or not fat oxidizes into water is rather beside the question. Water can undoubtedly be lost through perspiration—quite an old-fashioned method, after all—but the fat remains as fat, and the weight loss comes back as water absorbed in fluids swallowed or absorbed through the skin, and there you are just where you started. Like the fellow who spent all his money on the merry-go-round—you've had a ride, but where have you been?

If you don't care about bathing off fat it can be—in proportion to your credulity—rubbed off, rolled off or shaken off by means of various appliances which, though often simple in appearance, were always specially designed, among other things to extract a good price, which they always did.

All such methods, of course, were simply indirect methods of causing muscular exercise and thus burning up fuel; seldom, however, to a degree sufficient to produce any marked or lasting effect. Then there were the wonderful pills, always remarkable discoveries and generally mild laxatives, some not so mild, though a few did contain in addition something as mysterious as citric acid, the same acid that makes fruit juices what they are. Or, if you didn't like pills, there were always various special foods with intriguing names and most remarkable properties—on the label.

Any value these methods had and any results they produced depended largely on an innocent little joker in the directions for their use; to wit, that while the method or preparation by itself would eventually make you slim and beautiful, if you wanted to achieve this transformation quickly—as, of course, you did—this could be brought about by abstaining from starchy foods and sugars which, incidentally, will reduce anybody with or without incantations.

Now it must not be supposed that all fat cures are fakes. Some of them will take off fat and do it quickly. Here's how it's done.

For a number of years—until the Food and Drugs Act with its still too numerous loopholes came into being—many reducing remedies contained thyroid extract, although this fact was seldom if ever stated on the label; and such preparations were capable of causing a definite loss of fat.

The thyroid gland is a highly specialized tissue consisting of two lobes on either side of the larynx joined by an isthmus. It is a highly important gland, indeed, because it has a defi-

IF YOU CHEAT; IF YOU BACKSLIDE; IF YOU BECOME TIRED OF IT OR DISCOURAGED BECAUSE YOU DO NOT GROW SLIM AND GRACEFUL OVERNIGHT, YOU'LL REALIZE IT WHEN YOUR BATHROOM SCALES TELL THE SAD STORY OF THE WEIGH OF THE TRANSGRESSOR.

nite and powerful effect on the regulation of metabolism; that is, on the normal functioning of the body as a whole. It is in effect a regulator of metabolism, and just as the governor of an engine regulates the speed at which the engine works, so the thyroid gland regulates the speed of the bodily engine by means of its secretion, which is absorbed directly into the blood stream as needed.

When there is a deficiency of thyroid secretion the bodily mechanism is slowed up generally, with very evident and even striking results. One of the conditions produced as a result of deficiency of thyroid secretion is known as myxedema. In this condition, as an evidence of metabolic sluggishness, the skin becomes dry and wrinkled, the hair falls out, the mentality is dulled, and the skin becomes so markedly thickened and lusterless as to give the unfortunate individual a very peculiar appearance. When this peculiar lack of thyroid secretion occurs in infancy, as sometimes it does, the individual is known as a cretin.

While the symptoms of this condition are marked and striking, their disappearance under the administration of thyroid extract is even more striking and more dramatic for in a relatively short time such individuals assume a normal appearance and become alert and in every way normal. As long as the administration of thyroid extract is continued they remain so.

When, on the contrary, there is too much thyroid secretion the bodily engine is stimulated to run at an excess speed and is, as it were, without a governor. This is the condition spoken of as goiter because it is frequently, though not invariably, accompanied by an increase in the size of the gland, which then becomes visible as a swelling in the neck.

Goitrous persons are extremely nervous and unstable in their nervous and emotional reactions; they have a rapid pulse because of the increased rate at which their heart is acting and are subject to many varied disturbances. It does not take much of an imagination to see that such persons are living at an excess rate of speed.

Of course any one who runs a car knows that it will not run without fuel, and any one who has even an elementary knowledge of the human body knows that it cannot run without utilizing fuel also. The automobile driver also knows that if he races his engine consistently he increases the degree of wear and tear and shortens its life.

Since food is the fuel of the body, it follows that if you race the bodily engine continuously and for no good reason, you also burn up fuel at an abnormal rate: first, the fuel taken in as food and then the fuel stored as fat. In other words, the administration of thyroid extract artificially increases metabolic activity to an excessive degree and so leads to the combustion of fat. This, therefore, is one method, and an effective one, of reducing. Why not use it then and treat obesity by the administration of thyroid extract?

Again, the automobile driver can figure that out. Excessive and uncontrolled engine speed means excessive and uncontrolled wear and tear and, eventually, breakdown. The bodily engine is no exception to this rule. The uncontrolled use of thyroid extract, if persisted in, will lead inevitably to a bodily breakdown, usually of the heart muscle which, instead of running along quietly, has had to race at breakneck speed; and the after-effect of overstimulation is fatigue. That is a law of nature not subject to repeal.

Thyroid extract can be used to reduce, but it should always be used with the utmost caution and under strict supervision, never unknowingly and never without a careful watch for its dangerous effects. The evil and sometimes disastrous effects which have followed the careless and often unwitting use of this drug are the main reasons why fat cures based on its presence have fallen into disfavor and ill repute.

In a roundabout way the World War was responsible for the introduction of a new and even more powerful fat destroying agent, which achieved quite a vogue until its dangers became manifest.

In certain of the munition plants it was noted that there was a progressive loss of weight among those engaged in the manufacture of explosives. Investigation disclosed that the responsible agent was a chemical known as dinitrophenol, the absorption of which caused a rise in temperature and marked increase in the metabolic rate. This chemical, in other words, acted as an artificial thyroid extract in these respects. Its effect in the human body was to increase combustion, the increased fuel demand thus created being supplied from the body tissues. It was both logical and natural that it should hence be applied to the treatment of obesity, and it was so used by physicians and was of course immediately incorporated into many fat remedies offered to the public.

Soon, however, careful studies brought to light a number of undesirable effects in addition to its ability to increase the metabolic rate.

It was found, for instance, that the administration of dinitrophenol even in small amounts to persons unusually sensitive to it brought about some dangerous changes in the liver, kidneys, blood and such specialized organs as the eyes, in which the formation of cataract occurred. And even without any undue susceptibility on the part of the patient, these effects followed the persistent use of the drug in an alarming number of cases. As a treatment for obesity it has therefore largely been discarded.

(Continued on page 946)

Photographs from "March of Time"

MEN of MEDICINE

ONE OF THE FEATURE MOTION PICTURES of 1938 has been "Men of Medicine," released in June by *March of Time*. This picture was seen and approved by the Board of Trustees of the American Medical Association. It is a recapitulation of the training of the doctor and of the need for medical service throughout this country, as well as a depiction of some of the ways in which these needs are being met.

In the United States today there are 77 medical schools, and in Canada there are 10. There are 729 hospitals approved for internship, and 451 hospitals which give residencies to train young men in the specialties in medicine.

The Council on Medical Education of the American Medical Association makes the requirement of two years of college education previous to the study of medicine, and three years or more of college is recommended. Fifty-eight (58) of the 77 medical schools in the United States have adopted preliminary requirements in excess of the minimum. Five (5) medical schools require a bachelor's degree, 45 require three years and 1 requires four years of college education. Only 19 of the 77 schools have a stated two year requirement.

The medical course in the United States covers four years of thirty-two weeks each. Fifty-five (55) schools require a four year course, while 12 schools require four years of systematic instruction and a fifth year as an intern or in research. Ten (10) of the medical schools offer either the first two years or the last two years only.

Tuition fees in medical schools vary from 4 schools with fees under $100 to 9 with fees of $100 to $200; 23 with fees from $200 to $300; 16 with fees of $300 to $400; 22 with fees from $400 to $500, and 13 with fees of $500 or more a year. Some schools make additional charges to nonresidents in the states concerned. Thus, in the University of California there is a fee of $300 additional for those outside the state, and Harvard University asks $425 additional. The average resident fee charged in medical schools in the United States is $342 a year.

THE MEDICAL STUDENT must master the science of chemistry and biology. He must train his mind to grasp and make use of the accumulated knowledge of twenty centuries of medical research.

TO THE NATION'S seventy-seven schools of medicine is entrusted the responsibility of passing on unbroken the inheritance of medical knowledge, of indoctrinating each young student with the traditions and ethics of his chosen profession. Here he must spend four long years, learning every physical detail, every living function of the human body.

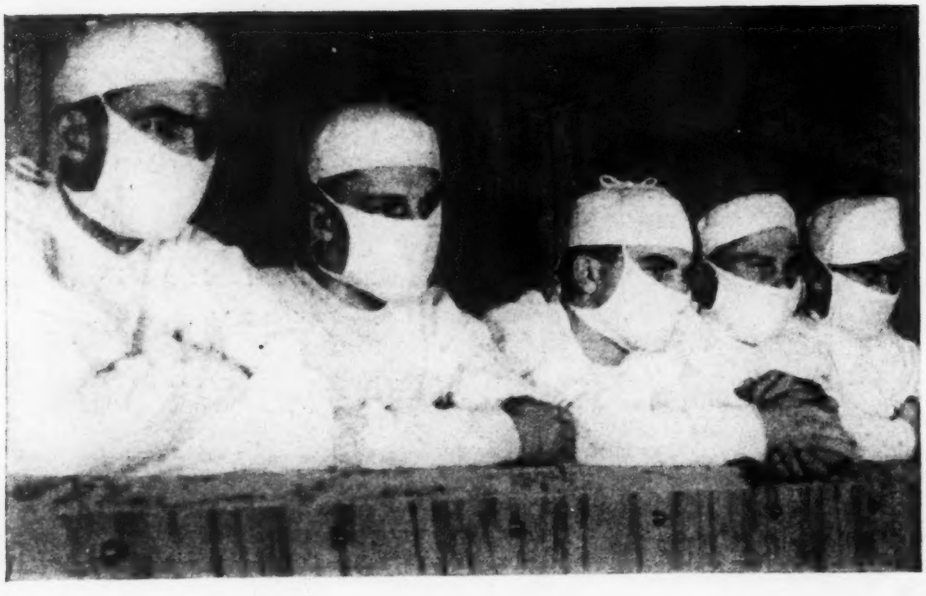
IN THE CLINIC and dispensary he must learn by actual trial the technic of medical practice. For to today's 165,000 men of medicine has come a vital trust—to heal the sick and keep the healthy well.

DOCTOR OF MEDICINE—with this degree he takes for himself the age-old oath of Hippocrates: "Whatsoever house I enter, there will I go for the benefit of the sick. . . . I will keep silent thereon, counting such things to be as sacred secrets."

HIS SCHOLASTIC LIFE ENDED, the young doctor joins a hospital staff for a period of his internship. Here he is brought face to face with the realities of medicine and of life.

AND HERE, from today's great men of medicine, he absorbs the high tradition of surgery—ever greater skill, ever improving technic.

HOUR AFTER HOUR he sits in the amphitheater or the lecture room, witnessing how masters of the art of medicine take care of the sick.



WITH EYES that are sympathetic for human suffering he views the performances of masters of surgery in daily combat with death.

IN THE UNITED STATES during 1937, there were 21,587 medical students, and 5,194 received their degrees of doctor of medicine last year. Thirteen (13) medical schools in the United States now require an internship after graduation as a prerequisite for receiving a medical degree. But practically every young man who graduates in medicine today takes an internship before he begins practice, if he is going into the practice of medicine. Indeed, in 50 medical schools it was found that 100 per cent of those who graduated took internships.

During 1937-1938, there were 1,161 women studying medicine in the United States, 48 more than during the previous year.

In 1905, there were 160 medical schools in the United States with 26,147 students. Now there are 77 medical schools with 21,587 students. In 1905, 5,606 students graduated in medicine; in 1938, 5,194 students graduated. There has been tremendous improvement in medical education without seriously diminishng the total number of physicians now being made available to the people.

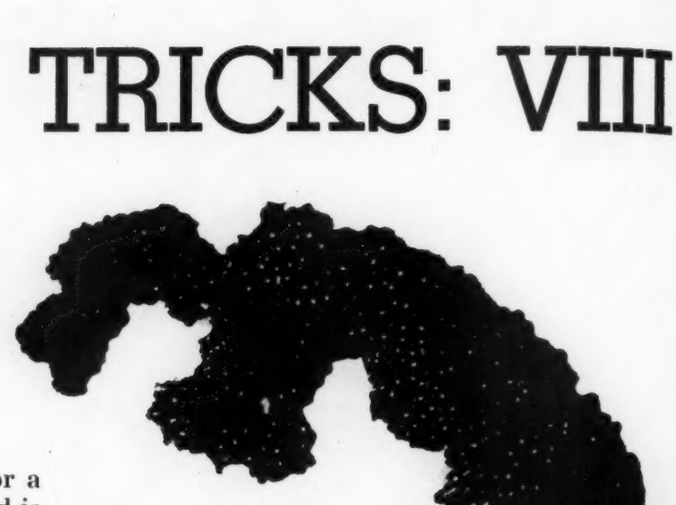
During 1937-1938, there were 372 Negro medical students and 61 graduates. In all, 3,392 Negro physicians are listed in the Directory of the American Medical Association.

A recent investigation by the Council on Medical Education and Hospitals indicates that there are 1,346 citizens of the United States listed as students of medicine in foreign countries. Figures show that not more than two thirds of medical students from the United States who graduate from foreign schools can pass the licensing examination in the United States.

PARASITE TRICKS: VIII

Tiny but treacherous, the tick, once regarded merely as a nuisance, is now recognized as a menace to man and beast, says

GEORGE A. SKINNER



AS MANY AS TWELVE HUNDRED EGGS MAY BE PRODUCED BY A FEMALE TICK IN A SHORT TIME. THE EGGS ARE COVERED WITH A STICKY SUBSTANCE WHEN DEPOSITED, PROBABLY TO PROTECT THEM FROM UNFAVORABLE INFLUENCES.

From Ewing

MOST PERSONS classify as an insect or a bug everything that crawls or flies and is not very large. Ticks, however, really are not insects at all but technically are called arachnids. These have eight instead of six legs and so are closely related to spiders.

The order of Acrina includes ticks and mites, but for the present we shall consider only the ticks. They are broad and have no waist lines, even by courtesy, for chest and abdomen are more or less fused with nothing to mark the separation. Their sizes vary from half an inch or more to almost invisibility. They are world-wide in distribution; and wherever they are, they are pests, attacking almost every variety of reptile and animal, and man is no exception. Formerly they were classed with the nuisances, but now we know how great is their menace to human and animal life. Intensive studies have been made of them to learn how man may best combat this increasing threat. The tricks of these insects account for some of the sudden, mysterious and often serious human ailments.

All ticks conform more or less closely to a type. All suck blood, and all pass through similar cycles of development. The body is covered with a tough skin, often glossy. The head has an effective piercing and blood-sucking apparatus. In some the head is completely concealed under the shell-like back, similar to that of turtles. In others it is quite apparent though never very prominent. The female has a comparatively short, shieldlike plate on the back; and when she feeds she makes a business of it and swells noticeably, sometimes to several times her normal size. The male does not do this, probably only because he is covered with a tough shield and cannot expand much, hence must stop eating when his limited capacity has been reached.

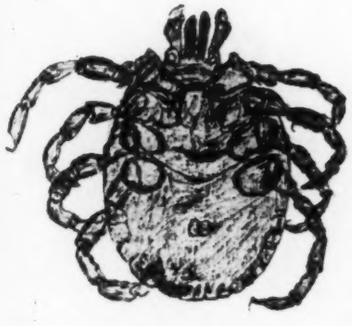
One of the tricks that distinguishes ticks from almost all other low forms of life is the long time they may live. Most insects last only a few weeks or months. Occasionally one is found with a life history of more than a year. But ticks have been known to live five years and will resist starvation to a most remarkable degree. Unfed ticks have lived more than two years. One famous case of five years is known. Three or four year survivals appear to be getting common. Even the unfed larval form of some ticks will live about nineteen months without food. The nymphs will usually survive longer, but experimentally they have also lived about nineteen months. Disinfectants and fluids that are usually quickly destructive to most insect life act slowly on ticks. Even if they appear to be dead after the use of sprays, they should be regarded as only "playing possum" and should be destroyed by fire.

With so much variation in size there is naturally considerable variation in life histories. All forms have four stages of development: the egg, the seed tick (instead of larva), the nymph (instead of pupa) and the adult, often spoken of as an imago.

Great numbers of eggs are produced by each female. The eggs are covered with a sticky substance when deposited, and the female then rolls them out in front of her. This sticky substance probably protects the eggs from unfavorable influences. As many as 1,200 eggs may be produced by a single female in a short time,

and over the month that she usually lives to produce eggs she may produce up to 12,000. With such a prodigious task it is no wonder that she wishes plenty of food. Ticks deposit their eggs on the ground.

When hatched after a few days' incubation, the seed ticks have but six legs. The tiny ticks are born hungry, though they have an astonishing ability to wait for food. They soon crawl up some handy blade of grass and there wait for some animal to pass. Usually this is a rodent or rabbit. The little tick literally "has his hooks out" for him and firmly attaches to the first passer in reach. Here the young ticks find abundant food, and some immediately drop to the ground after feeding. There is a considerable variation at this point in the life history. Some ticks have only one stage on animals and remain attached until they mature. These are called "one host" ticks. Others have two, three or many stages and are accordingly called "two," "three" or "many host" ticks. The first sort grows up and mates without falling off. The male then disappears, and the female drops to the ground, lays her eggs and dies. Ticks of two or more hosts have one or more latent periods in their development, which comes on the ground, and there the first molt occurs. When this molt is over, the nymph has eight legs like the adult and has increased considerably in size. It seeks another animal and repeats the process. Usually the nymphs are not at all particular on what sort of an animal they take residence and merely keep waving their legs around until they hit something. Then the hooks quickly get into action, and they get a second meal. This feeding and dropping is repeated from two to several times until the full adult stage is reached. Where there is so much uncertainty in finding food, the period of development must vary greatly. If the young ticks quickly get a host, they grow rapidly. If this stage is long delayed, many die and only the toughest survive and develop. There may be a long time between meals, and the ticks remain over winter in a resting stage. Or they may have a short and perhaps merry life. If food is abundant and conditions are easy, the life is much shorter than under starvation and hardship.



THIS TICK IS RESPONSIBLE FOR ROCKY MOUNTAIN SPOTTED FEVER AND MAY TRANSMIT IT AT ANY STAGE OF ITS DEVELOPMENT. ABOVE, IT IS SHOWN FROM THE DORSAL OR TOP VIEW, AND BELOW, FROM THE VENTRAL OR LOWER SIDE. IN MOUNTED SPECIMENS THESE TICKS ARE OFTEN TRANSLUCENT, SO MANY ORGANS SHOW THROUGH.

Almost always there is a practical side to the study of insects, and although it may not be immediately recognized, all the knowledge we have of insects is of economic importance, and sometimes such knowledge is the only thing that saves us from serious outbreaks of destructive diseases or great economic losses. Often our first knowledge of the ravages of hitherto unknown insects comes through their attack on our animal friends, and the resulting economic losses cause the first studies.

Almost at the close of the last century, cattle from the South that were driven north to market caused much loss to stockmen by infecting cattle along the route which they had traveled. Some mysterious contagion, which had no effect on the southern stock, killed the northern cattle by hundreds. This became so serious that a quarantine was put on cattle from Texas in particular, as so many were driven from that great state that the disease they seemed to carry was called Texas cattle fever. But this was not because the disease was confined to cattle from Texas, for the same disease was widespread in the South and was known in other lands. In Australia it was called red water fever. Nor was it new; for a century before, observers had noticed that the cattle of the South spread fever among northern herds.

There was something mystifying, however, in the way this came about. The northern cattle were not taken sick immediately and often did not come anywhere near the southern herds but merely crossed their trails or fed over the same ground that the southern cattle had passed over in going north. Also it was curious that the disease did not become apparent until a month or so after the herds had passed on to market. Still more strange was the fact that if southern cattle were driven north in cold weather, there was no infection following. As the drive north continued, the southern cattle became less and less able to spread the infection.

There were so many strange facts about the disease that did not check with anything known, that many theories were advanced to account for it. Perhaps it was the saliva or urine that infected the ground. Certainly no one knew how to explain it. So the U. S. Department of Agriculture detailed two men, Drs. Theobald

Smith and F. L. Kilbourne, to study the disease and if possible to solve the mystery connected with it. This was in 1889. Smith and Kilbourne soon discovered that there was a tiny parasite always found in the blood of the cattle sick with Texas fever, and this organism has come to be known as Babesia bovis. At first it was called piroplasma because it is somewhat pear shaped. Most observers regarded it as the same organism that was found in Europe and called Babesia bigeminus, as two were usually found in one blood corpuscle. A number of observers had seen various germs in the blood of these cattle but had not established the relationship of them to the disease.

The next serious question was to find out where the germs came from and how they got into the cattle. Insects had long been suspected, and keen observers among cattle men thought ticks had something to do with it; but no one took much stock in such observations. The facts as specified were known to Smith and Kilbourne and made them think some insect must be connected with the spread of the disease, since it was not active in cold weather. And this corresponded to the life cycles of many insects. As all southern cattle were always more or less tick covered, it seemed worth while to study ticks and see whether they had any connection with the disease.

If ticks could cause cattle fever, animals freed from ticks should not be able to spread it. If ticks carried the disease, such ticks should be able to convey it, even if they were carried some distance from home. Cattle, sick with the fever but freed from ticks, also should not be able to spread the infection. So experiments were tried along these lines.

The experiments were pretty conclusive that ticks played an active part in the transmission of the disease, but at first it was thought that after becoming infected the ticks died and the parasites were set free and were eaten by the cattle with the grass of pastures. After much labor it was finally discovered that it is not the adult tick that transmits the disease; neither is it the dead ticks which have disintegrated and liberated the parasites, but it is the young (seed) ticks recently hatched that convey the parasites.

Even after this was known it took a number of years to work out the complete life history of the parasites (Babesia bovis), and just what ticks carried them. One tick called Boophilus annulatus was found to be the principal carrier. In Europe another tick carries the disease and in South America still another, and no one is able to distinguish any difference in the parasites they carry.

The parasites mate in the intestines of the tick and form a new motile organism, the ookinete. These pass through the intestinal wall, invade the ovaries and enter the eggs. They multiply in the eggs and pass all through the developing seed ticks. By the time the ticks are hatched the parasites have reached the salivary glands. The seed ticks bite the cattle, and the infection is conveyed to the blood, causing the disease. This explains why cattle are not immediately sick after contact with the infected ticks. The infection does not take place until the second generation of ticks is hatched. The mystery of no disease in cold weather was cleared up, as ticks do not bite during cold weather but hibernate, mostly in the seed or nymph forms.

The discovery of the life cycle of this Babesia seems to be enough to clear up the life cycles of other forms closely allied to it. Yet this does not always work and did not in this particular instance. There is a severe disease in dogs caused by an organism closely allied to the one causing cattle fever; but the seed ticks cannot transmit it, and only the nymphs or adults can pass it on. A like disease of sheep can be transmitted by the adult only. Just what causes these differences we do not know, but we do know that they exist.

The great interest attached to this discovery of tick transmission of cattle disease is of twofold basis. It was the first instance of proof that the blood-sucking insects might convey diseases to man and to animals. This was before the life history of the malarial parasite had been worked out. It gave a great impetus to the study of insects in connection with disease.

Among those most interested and benefited were people connected with the cattle industry and indirectly others who handled food supplies. Here was a yearly loss estimated at $100,000,000 that was due to ticks, and with the discovery of this cause there was a possibility of being able to find a remedy. Such a remedy not only would remove the great loss in cattle but would free commerce from the restrictions of quarantine. The remedy was found and may be seen now any time during warmer weather, wherever cattle are shipped from south to north. Here will be found large tanks filled with disinfecting fluid, fatal to ticks. Into these tanks, cattle and sheep are driven. They enter with a plunge that entirely submerges them, horns and all, so that all the ticks are destroyed. Then the cattle must usually swim for a distance and walk up a gradual slope, giving the fluid ample time to destroy the vermin and drain back into the tank. Complete immersion is necessary, for practically all ticks are forced by instinct to climb, and they therefore tend to congregate on the highest point of the animal, around ears and horns.

Almost immediately the discovery of the connection between ticks and cattle fever began to cause investigations as to other diseases of similar nature involving man. In Montana for many years there had been a disease that bore numerous names, such *(Continued on page 911)*

Eye Physicians, Opticians and Their Work: II

By EDWARD JACKSON

[EDITOR'S NOTE.—Definitions of technical terms used will be found at the end of the article.]

THE ENORMOUS INCREASE in the number of people who need glasses, together with the knowledge that the nervous and general health depend on the prevention of nerve strain by use of defective eyes, has caused physicians to give more study to the needs of the eyes in all civilized countries. While ophthalmic surgery has not increased in importance, eye physicians find more and more to study about the eyes, and more persons depend on their careful and conscientious medical advice.

With the increased need for glasses has come an enormous increase in the need for service in making glasses and mounting them properly before the face—the need for skilled opticians. The glasses cannot fully serve their purpose unless they are properly placed before the eyes. Glasses that are to be worn all day and every day, on which depend health and a livelihood, must be fitted to the face on which they are worn and to the uses to which the eyes are put. Lenses and frames for holding them can be made by machinery in enormous quantities. But to be serviceable to their wearers they must be fitted to the individual eyes and be adapted to the particular use that is to be made of them. They need to be placed so that the eye may look squarely through the lenses, or they do not produce the required effect. This is the reason the eye physician wishes to see every pair of glasses he prescribes, just as they should be when worn by the patient.

The patient, too, needs to see the eye physician to ask about some effects of his new glasses. If he has always seen well at a distance by straining his eyes, they will not stop straining at once; and such straining with lenses that make straining unnecessary will make the sight worse for distance. The only remedy for this is for the patient to stop straining, and this is often hard to learn. To relax completely is about the most difficult thing one ever learns to do. But almost every one does relax his eyes when he closes them, and he can learn to do it when his eyes are open.

Another difficulty with new glasses comes from the fact that the glasses have to be worn in front of the eyes and therefore change the size of the images formed on the retina. If the glasses for the two eyes have to be different the size of the images in the two eyes will be different and the images will not fit each other when things are looked at with both eyes. If the eyes have an astigmatism the images will often be of different shapes. While getting used to new images in the eyes, things look different. One judges of shape and distances by using the two eyes together. If it is explained to the patient that he must learn to see over again he will know what he may expect and will be helped to meet this difficulty. He will soon see that things look clearer, and he will feel from week to week that he is getting more good from his glasses. He needs to have his troubles explained and to be encouraged with the advance he is making.

Ezra Dyer, born in Boston, was graduated from Harvard Medical School and studied for three years in Europe. He came back to Philadelphia in 1861, where he met Dr. Weir Mitchell, a young physician already known for his research in physiology and neurology. Mitchell put to Dyer the question he asked of every friend or new acquaintance, "What is new?" Dyer could tell him how Snellen was working on his new test type and Donders was collecting material for his book. Mitchell was interested and began to send to Dyer his patients with headache and nervous exhaustion to have their eyes examined for errors of refraction and signs of possible brain disease.

In 1865 three young doctors in Philadelphia began making diseases of the eye their specialty. Dr. George C. Harlan had been the resident physician at Wills Hospital before he received his M.D. degree. He wrote his thesis on iritis.

HOW OFTEN DO GLASSES NEED CHANGING? AS OFTEN AS THE FOCUS OF THE EYES CHANGES TO MAKE THE WEARER CONSCIOUS OF DIFFICULTY IN THEIR USE. AN OPHTHALMOMETER IS BEING EMPLOYED TO MEASURE THE CURVES OF THE FRONT OF THE EYE AND THEIR EFFECT ON ITS FOCUS.

After general practice for three years, William Thomson with William F. Norris who had just been graduated had been stationed at Washington. At the Army Medical Museum they worked out the photography of wounds and of microscopic slides. This introduced them to optics and interested them in the eyes. To them and to younger men who studied with them, Dr. Mitchell referred his patients who might be suffering through use of their eyes—"eyestrain," he called it. Norris and Risley studied how eyes became myopic through inflammation about the optic nerve and in the choroid, and Harlan learned how myopia developed through using the eyes turned in for close reading. H. Derby studied the eyes of college students at Amherst and Harvard and found that myopia increased during their college course. George M. Gould studied under Dr. Thomson and later pointed out that the poor health of many famous scientists, musicians, historians and other writers had been due to eyestrain. In six volumes of "Biographic Clinics" he gave more than twenty cases. He cited such men as Darwin, Huxley, Carlyle, Whittier, Balzac, Wagner and others, equally well known, who were thus handicapped. Their cases were supported by cases he had seen, ranging from

migraine to suicide. He gave "sixty-eight reasons why glasses do not give relief," starting (1) because the symptoms do not come from eyestrain and ending (68) because the wrong glasses may make the symptoms worse. Gould was a prolific writer and scientific student and had suffered from defects in his own eyes. The use of glasses to preserve health thus became a step toward the preventive medicine of the future.

When von Graefe, the great Prussian surgeon, first looked into the eye with the ophthalmoscope, he exclaimed, "Helmholtz has opened for us a new world." Looking at the back of the eye gave a more exact knowledge and a better understanding of the many diseases that affect the eyes and endanger sight. But even more important, it gave a new way to study, through the effects they produce in the eye, diseases that affect all parts of the body. In the back of the eye are small blood vessels, magnified by the lens in the eye and by the lenses in the ophthalmoscope. Disease affecting all the blood vessels in the body is first detected in the back of the eye, and its progress toward death or recovery can best be watched in the eye. There the physician can look right through nerve fibers and see the first signs of nervous diseases that may cause death only after years of invalidism. Tumors and other diseases of the brain may be first recognized by the changes in the back of the eye. These changes make the eye physician an important helper to those who have or who treat diseases in other parts of the body. He is, in the broadest sense, a physician. Tuberculosis, heart disease and cancer of the stomach or lungs may be first recognized in the eye.

Health means wholeness, the working together of all parts of the body, which accomplishes what no single part may do alone. That is the reason why the physician must study about the whole body and how the parts work together. Then, when something goes wrong, he may know which part is at fault and correct it. When an automobile will not start, the fault may be in the battery, the starter, the valves or a cylinder; or there may be no gasoline in the tank. One who knows all about automobiles can guess what might be wrong and fix it. But the human body is more complex than any automobile. A doctor, who has taken the body apart and has watched healthy people to see how the body should work and sick people to see what happened when something goes wrong, may be able to tell what is the matter and really help. But a quack, who knows nothing about the body or how it works, who has studied nothing but salesmanship and how to make a good impression on people who know nothing about him, can advertise and claim new methods of cure, new kinds of glasses, great experience and a particular way of testing or exercising the eyes, "not known to others." But false claims will not start one in health, any more than they will start an automobile.

Glasses can help the eyes only when they are the right glasses, when they will turn the light the way the eyes need. Furthermore, no glass will help if it is something else the eyes need. The physician who knows you and just what your body needs may be able to help you. If your eyes really need help, he can tell you of an eye physician whom you can consult and trust, and he will know whether your eyes really need the help of glasses, what glasses will help them and who can make and fit the glasses, as it should be done. If there is no optician where you live, the eye physician will know where and how to send for the glasses and to test whether they are made correctly.

When the best glasses have been found and worn as they should be, there are still other things to be done for sight. The mechanism of the eye is more delicate than that of the automobile; and, when damaged, most of its parts cannot be replaced. Our eyes are not developed to do all the hard work and give long endurance records that we may expect of them. We must learn to expect only what it is possible for them to do.

Eyes get old as automobiles do. For the latter we understand that the wear of parts is one thing that makes them old. Blind eyes are more common after 60, although there are more people living who are younger than 60. Eyes get nearsighted at school. But cataract or detachment of the retina may come to such eyes only after many years. Smallpox, measles and scarlet fever can damage eyes in childhood, and it is realized years later that such eyes are going blind, after being further crippled by the strain put on them. Much of this strain could have been avoided by the use of correcting glasses. But the tradition that most eyes do not need glasses until they become old still keeps people from trying glasses for themselves or their children.

Eyes do change with age, and with such change they may need a change of glasses. The change that was first known to be common was called presbyopia, or old sight. This makes it necessary for people of from 40 to 50 years to get glasses to see fine print or fine sewing. Then it was noticed that young people who were nearsighted needed to get stronger and stronger glasses to see clearly at a distance. Then some, who saw well, near or far, when young and who began to wear glasses at 40 to see close objects, found after 50 they needed other glasses to see clearly at a distance. For eyes with astigmatism, it was known that glasses for all distances were needed. But it was supposed that astigmatism did not change with age. Of late years it has been learned that at all ages, astigmatism may change. After 50 years of age such changes are

more common and are more important than at other times.

All these changes in the focus of the eye start gradually and are not noticed until they cannot be overlooked. Loss of focusing power to see at close range and changes of astigmatism are the most common causes of loss of sight in old age and may be causes of blindness from cataract and glaucoma. The right glasses, kept right, when such changes come are the preventive of blindness. A change of glasses may be the urgent need of eyes that are beginning to show evidence of cataract or glaucoma. To see better by a change of glasses is better than to wait for an operation or perhaps to go blind from glaucoma while waiting. Poor sight is the cause of many accidents to old people. Only the best sight possible is "good enough." By keeping the glasses right, all the eyes have to do is made easier and safer.

How often should glasses be changed? As often as the changes in the focus of the eyes make a wearer conscious of discomfort or disability in the use of his eyes. As an average of different people, glasses will need changing about once in four years. But one person may go ten or twenty years without any change, and another may need a change within a few months. In some eyes slight changes will make trouble. In others greater changes will not be noticed. No one can predict when the need of change will occur. Conditions of general health will influence the changes in the eyes. The safe thing to do when a change is needed is to go to an eye physician and get his judgment about it. It is not necessary to change every time a new shape of frame is advertised as the "latest improvement."

This question of need for glasses comes to every one who works with his eyes. Headache, weak eyes or failing sight may come from many causes other than eyestrain. A health examination will sometimes show unsuspected failure of health in various directions. If your family physician finds no other cause for your symptoms, he can send you to an eye physician who knows how one part of the body is affected by other parts; and, looking into your eyes, he may find in the retina or the optic nerve, evidence of some general disease which might give no other sign of its presence until years later.

If the eye physician finds that you need glasses he will measure your eye defects by scientific methods to get the exact glasses that you need. He will tell you how you can safely use your eyes; what kind of use and exercise will strengthen them; what kind of light your work and your eyes require. This will all be done to render you the best professional service. If you go to one whose first interest is to sell glasses you cannot expect such service.

The selling of glasses offers an attractive field for quackery. Glasses of many colors are made and sold under copyrighted names and advertised with claims that are effective because people do not know much about optics and the physiology of the eye.

Let your ears help your eyes: Tune in on Wednesday, November 2, and let the American Medical Association and the National Broadcasting Company tell you about "Seeing and Hearing Well." Further details will be found on page 938.

Definitions:

Aberration: A defect of the eye which causes imperfect focusing and poor sight.

Accommodation: The power of the eye to alter its focus and see clearly at different distances.

Aniseikonia: Unequal images in the two eyes which makes difficulty in seeing through new glasses.

Astigmatism: A defect of vision, preventing proper focusing. Light coming from one point is not focused to a point, causing poor vision for small objects like letters.

Cataract: An opacity of the crystalline lens of the eye, preventing vision.

Detachment of the Retina: Separation of the two layers of the retina, preventing vision.

Eye Physician: One who, after the regular course in medicine, studies the defects, diseases and injuries of the eye and all that could help to improve vision or prevent eye diseases.

Eyestrain: Strain of the eyes and parts connected with them, causing poor vision, inflammation of the eyes and strain or disease of the nervous system.

Glaucoma: Hardening of the eyeball, causing blindness and great pain, coming on usually after 40, either gradually or suddenly.

Hyperopia: Farsightedness, a defect in the shape of the eye that causes strain to see things distinctly, especially objects close to the eye, and in old age, when the power of accommodation is lost.

Myopia: Nearsightedness, a defect in the shape of the eye, such that nothing can be seen clearly without glasses, unless it is held very close to the eye. It tends to cause cataract, detachment of the retina and other diseases of the eye.

Oculist: An eye physician.

Ophthalmologist: One who has studied the science of ophthalmology, an eye physician.

Ophthalmometer: An instrument for measuring the curves of the front of the eye and their effect on the focus of the eye.

Ophthalmoscope: An instrument for throwing light into the back of the eye to examine it.

Optician: One who makes, mounts and adjusts glasses and optical instruments, according to the prescription of an eye physician, and who understands and deals in optical instruments.

Optics: The science of light.

Optometrist: One who claims ability to measure the eyes for glasses without knowing about its diseases or any regular study of medicine.

Presbyopia: The condition of the eyes in old people after losing power of accommodation and after other changes that make seeing difficult or impossible.

[NOTE.—This article concludes Dr. Jackson's discussion, which began in the October issue.]

EXERCISE

***To golf, a grand servant of man but a poor master, is devoted the seventh article of the series by* DUDLEY B. REED**

IN MOST RESPECTS, golf meets to an extraordinary degree the standards which I have set down for a good athletic sport. It is widely available. There is scarcely any part of our land where people live in any numbers or stay for a vacation period where golf cannot be found. He would be a hardy and venturesome innkeeper who would establish a caravansary for summer trade and not provide for golf. It can be played during most of the months of the year even in our northern states and under weather conditions which would rule out tennis.

It requires the absolute minimum of players, fewer than any other game known to us, and no more than swimming and skating.

It is good for both sexes and almost all ages and is more adaptable in severity to the needs of the individual than almost any other game, probably than any game. A man could play one or two or three holes on level ground with minimal exertion, or he might play a hundred and fifty holes in a day as some have done. It may be mild enough for a person who can take any exercise at all or severe enough to test the endurance of a well conditioned young athlete. Moreover it lends itself to a prescription by the physician as accurate as the method of treating constipation used by a celebrated French physician who is said to have had a patient walk from a given point to another given point taking five minutes for the journey, sit down and eat a quarter of an apple, walk another specified distance in a definite time and eat a second quarter, and so on as much as the prescriber thought desirable. The golfer may be limited to nine holes in leisurely fashion, or he may be directed to play eighteen holes in a similar way. The thing is wonderfully definite, whereas instructions to play two sets of moderate tennis may be open to misinterpretation as to what "moderate" means or to the stresses and strains of a very different sort of competition.

Its disadvantages lie in equipment required or thought to be required, time consumed and expense. The last element, however, is elastic since one may play on a municipal course for something like 20 cents a round and with some four cheap clubs and have a very good time.

Golf is essentially a mild game since it is a leisurely one and does not require maximum effort. Even a poor player does not strike the ball many times. If he needs 120 for eighteen holes that means but 48 such efforts in an hour if it takes him two and a half hours for the round, or one swing every minute and a quarter, of which from a third to a half are putts requiring almost no effort and not more than a half are full swings. Therefore the exercise is chiefly walking, and walking is mild exercise unless there is a good deal of uphill work. Even then it is not too severe, if it is done slowly. Thus it is seen that the game is ideal

physically for older persons whose circulatory systems are not quite what they once were.

At the risk of repetition let me quote at some length from an article by Dr. Ferdinand Lagrange:

> The heart and arteries, in spite of the most rational exercise lose with age a part of their aptitude to function, because they lose something of the integrity of their normal structure. Thus the arterial tissues commence to grow old toward the middle of adult age, notwithstanding that the muscles are yet young at middle age. From the age of 35 years, one recognizes, even in a state of apparently perfect health, a certain tendency to sclerosis, a nutrition fault, which alters the flexibility of the vessels making them lose some of their elasticity. Someone has designated the changes in nutrition that follow the progress of age in the arteries of man by the picturesque expression, "the rust of life."
>
> All the indications of exercise in middle life, all the precautions taken for their application, are dominated by the great physiologic fact—the lessened aptitude of the blood vessels to sustain violent strains. This imperfection of the arterial system is shown by a notable tendency to breathlessness; and by breathlessness is shown the diminution of fitness of the middle-aged man for violent exercises.
>
> The changes in the structure of the arteries, even when not caused by illness, render the man of fifty much more vulnerable than the younger man; and this is especially true of the organ most essential to life. It is the heart, in fact, that suffers from the lack of elasticity of the arteries as the result of vigorous exercise.
>
> As the elasticity of the arteries is lessened, the work required of the heart in the circulation of the blood is increased. This excess of expended energy passes unobserved if the beats keep their normal slowness, but becomes very obvious as soon as they are accelerated.
>
> Breathlessness in a man who is in the habit of taking physical exercises is one of the first symptoms by which it is disclosed that arterial degeneracy is commencing. It would be grave imprudence not to give attention to this notification.
>
> On the average, it may be said that after forty years, a man should abstain from exercises that cause breathlessness. In place of exercises of speed, he should adopt exercises of strength, in which he may conserve remarkable fitness. Man conserves until the last limits of middle age the faculty to endure long hours of considerable work, on condition that the work may be done with a certain slowness. Among the mountain guides may be seen many who are approaching seventy, and who tire out young tourists. But everyone has noticed that the most experienced guides, that is the oldest, ascend very slowly, and in this way they can walk almost indefinitely.
>
> Forced exercises are also as bad for the man of middle age as exercises of speed as they cause the physiological condition of effort.
>
> The middle-aged man can with impunity take exercises that bring muscular fatigue; but he must avoid with the greatest care those that provoke breathlessness.

Peter V. Karpovitch of the Young Men's Christian Association College at Springfield, Mass., made a study of some of the physiologic aspects of golf, observing 120 persons, men and women, who were patients at a sanatorium, 20 of them being cardiac patients.

With regard to the work involved in golf he states that a person walking over a golf course of 6,000 yards at a speed of 4 miles an hour spends as much energy as would be required for him to lift himself five and a half times to the top of the Woolworth building; at 2 miles an hour enough to lift himself a little over four times to the top of the same building. This is assuming a perfectly level course. Four miles an hour is fast walking. Few golfers walk at that rate between shots and, even if they do, there are rests between walks. Here follow Mr. Karpovitch's observations and conclusions:

1. A too great loss of weight following exercise with a slow return is bad.

2. Lower blood pressure particularly in the standing position with higher heart rate and a slow return to normal after very moderate exercise is an indication of poor condition.

3. Sleeplessness, restlessness, fatigue in the morning and lessened appetite after moderate exercise is an indication of poor condition.

4. Abnormal heart or kidney conditions increase the dangers in severe exercise. Moderate exercise cautiously taken will be an advantage.

5. All individuals should be cautious about eating too soon after exercise. People out of condition should be very careful to rest before eating.

6. Patients recovering from some sickness naturally have lower resistance and may collapse even after playing a few holes. Usually they walk and play slowly and it is better to allow them to play not more than thirty minutes on a plain even course. There is strong evidence that such exercise is beneficial to them. If ill effects are seen reduce the number of holes played.

7. Cardiac patients with well developed compensation react in the same way as normal people and 18 holes played by some do not seem to have any harmful effect upon them.

Here it should be added that not only do hills and speed add to the necessary heart work in play but so also does heat. On a hot day the dependable and automatic circulatory system attempts to rise to the occasion and keep you comfortable by dilating the blood vessels on the surface of the body and pumping the blood around faster in order that it may be cooled by the automatic refrigerating system consisting of evaporating perspiration on the skin. This means increased heart action and probably elevated blood pressure and greater strain on middle-aged arteries. The combination of heat and vigorous exercise may prove too great a load, and the obvious conclusion is that the golfer who ought to have but moderate exercise should play fewer holes on a hilly course or a very hot day.

What about the instances of sudden death on the golf course concerning which one reads ever and anon? The first thing about them is that there aren't many of them, and that is one reason why they are news. Another reason for their being news is the fact that the report of such a death implies, if it does not state, that it was due to golf; and the few opponents

of golf, including unfortunately some wives, read it with great interest, and many a hard working and kindly husband is greeted that night with a query as to whether he noticed what happened to Mr. Van Niblick, there being something in the tone of the inquirer which conveys the message, "And the goblins'll get *you* if you don't watch out!"

In a way, the thing has the same news value as the death from tuberculosis of "Buck" Harkness at the age of 32, just ten years after he was chosen on everybody's All-American football team. Football didn't give Buck tuberculosis, and more men die of a cardiac accident in bed or even in the bathroom than on the golf course.

One is reminded of the conversation said to have taken place between a sea captain and a landsman who asked, "Captain, aren't you afraid to go to sea?" The captain replied, "No, why should I be?" Forced by questions to admit that his father and grandfather had died at sea he seemed to be in a corner until he turned like a worm at bay and demanded, "Where did your father die?" It then developed that practically all the landsman's ancestors had died in bed, and so the captain pointed the obvious conclusion as to the danger of going to bed.

In 1924, Dr. Clarence W. Lieb collected data on twenty-seven cases of sudden death on the golf course and found that organic conditions were the causes in practically every instance and that golf was merely contributory. In at least one instance the man was playing contrary to specific instructions from his physician. Of course this means that there are heart conditions which should keep a man of sense from playing golf at all but that he may play moderately to his advantage in the absence of such a condition.

Dr. Lieb points out further what I have mentioned in another chapter; namely, that exercise should be taken with regularity and not concentrated on Saturday and Sunday. "Unless a healthy, vigorous man plays golf every day, or at least every other day, he should supplement this form of exercise with some other type of muscular exertion in order to keep fit physically." With the spirit of this quotation I am in hearty accord; but remembering that golf is a mild game and chiefly walking, I am inclined to think that a man may play eighteen holes on Saturday and repeat on Sunday and let his ordinary walking about his business keep him in condition good enough to remove all danger from his golf. Naturally, being an advocate of such recreation, I should feel that he would be better off physically if he played eighteen holes every day; but only a few men, relatively, are paid for doing that.

Dr. Lieb says also that there are two general types of golfers in whom medical experts are interested, the neurologic (those with high-strung, intensive, petulant natures) and the cardiologic (those with circulatory abnormalities such as weak heart, elevated blood pressure, hardened arteries or faulty kidneys). He says, "If a vote were taken among neurologists as to whether golf was advisable for nervous people the majority would say it was provided it did not make the patient more nervous." Disheartenedly he goes on to add, "The game does make most nervous persons more nervous."

He believes that golf irritations are like frequent small doses of some poisons, cumulative in their effects. By tests on three men over 50 he found that irritation and hill climbing produced about equal elevations in systolic blood pressure.

Dr. Lieb brings us face to face with a phase of the golf picture which is at least as important as, although less written about than, the overlapping versus the interlocking grip. However, being a somewhat high-strung and nervous person myself, I hesitate to accept without qualification his statement that the game makes most nervous persons more nervous. With regard to petulant and peevish persons I should feel differently. The special and particular exasperations of golf doubtless have a bad effect on them, shown by throwing the club, threatening to resign from the club, calling on high heaven to witness their bad luck, fuming, fretting, stewing and otherwise raising their blood pressures and voices. If they give way to tantrums of this sort, ruining their games and destroying their pleasure, it might be well for them to exchange golf for a psychiatrist for a time.

However it is my firm belief, unsupported by any laboratory experiment, that if the person who is nervous (a word, by the way, which is susceptible of varying interpretations) is so because of being an individual who works hard and concentratedly and at high pressure; if he is nervously tired and possibly irritable because of that, he will probably be greatly relaxed and revivified by playing the game if he approaches it in the right spirit. And just here we approach the kernel of the nut (used in no invidious sense). For the vast majority of us golf is just a game, to be played for fun and relaxation and exercise and companionship and getting into the country. The professionals make their living by it, but they are conspicuously not club throwers. If they don't take it calmly they don't make much of a living. The amateurs who do not play in tournaments are the ones who become overheated about it; or perhaps they do not play in tournaments because they become overheated.

Golf should not be played in superlatives. Usually one's play is *(Continued on page 951)*

Little Claribelle Learns to Be Kind to Animals

By PHILIP JARED

LITTLE CLARIBELLE ANSWITH had a winsome personality, if the word of all the neighbors and the friendship of all the cats and dogs in the vicinity could be regarded as indications. She was the personality complement of Old Teaser, an older brother, if you know what I mean; she had what he did not have. Yet Claribelle was not quite the perfect little person which she had given promise of being.

I am not even apologizing for her shortcomings because I am partial to any little girl of 7 who has as much personality on the ball, as the saying goes, as she had. It's quite true she still was not able to content herself with second choices, and she wanted what she wanted when she wanted it. But then there are a lot of grown-ups that way who haven't learned better.

Many times I have heard her whining and nagging for things which she wished Dr. and Mrs. Answith to give her, notably a puppy or a kitten. But she had never got this wish granted, either because she was tested a number of times and found wanting in some respect or because there had been bad luck.

Once there were two famished and thirsty kittens that wandered about the neighborhood until little Claribelle's motherly little heart took them in. As a matter of fact, they were rather horrible little specimens and more conducive to murderous reactions than sympathy. I suggested, and so did Mrs. Answith, that they be turned over to the Humane Society, but Claribelle stormed around about it worse than when Old Teaser amputated the frayed leg of her black Mammy Doll. Thereupon Mrs. Answith set forth certain rules which little Claribelle must follow—or else:

The kittens must be in quarantine in the basement for not less than two weeks.

There must be no more petting and handling until after two weeks.

Little Claribelle was to feed, clean and disinfect them daily under the guidance of an older person—me.

If there were any signs of disease she was to agree to condemnation and removal without objection.

In other words, little Claribelle could not have her cake and eat it too. She, Claribelle, must assume responsibilities for her pets and do it right. The rights of others in the household must be respected above the rights of her dumb pets. Furthermore, she had to respect the needs of the pets. These were wise provisions of a wise household sanitarian who knew what it was all about.

When Dr. Answith drove his car into the garage part of the basement that evening, I told him what had happened. He smiled in a rather inscrutable fashion and went to look at the kittens. He found little Claribelle hovering over their quarantine cages and talking to them, but she was keeping hands off. She was promising the kitties and herself all sorts of good times when they were no longer under suspicion. Dr. Answith looked them over critically. I knew he was thinking thoughts of rabies, parasites, distemper and even diphtheria—kittens can carry it. He gave me instructions about helping him eliminate the parasite idea.

But after three or four days, Claribelle lost interest enough to need reminding about caring for the kittens, and then one of the kittens began having fits. Perhaps the story would have come to a pretty abrupt end if Dr. Answith had not been a "laboratory man" in his profession. He relieved Claribelle of caring for the kittens and gave the job to me. Twice each day he would take Claribelle down to look

at them and give her a little lecture on things she should know.

"If you aren't kind to dumb brutes," he said, "you're too selfish to be kind to people."

"But I've been nice to the kitties," objected Claribelle. "I like 'em."

"Huh!" snorted Old Teaser, who had tagged along. "'Tisn't nice not to feed 'em regular. That's what you did. These ol' cats get hungry just like you do."

"I forgot," she answered.

"They're no good anyhow," insisted Old Teaser. "Dogs are better. They don't scratch you all the time."

"I want my kitties. Besides, dogs go mad sometimes."

"So do kittens, Claribelle," said Dr. Answith kindly. "I'm wondering whether one of them isn't mad right now."

"Oh!" Tears began to come into her eyes.

"Now, now!" said Dr. Answith. "Remember what your mother told you about taking what came. Let's go upstairs. . . . There are two good reasons why we'll have to let the kittens go, Claribelle. Do you know what they are?"

"Uh-huh," she sniffed, "but I want them—or another dolly."

"Oh, I see!" Dr. Answith smiled. "You're a selfish little opportunist, you are." He pinched her ear affectionately. "You don't know, do you, that I'm going to spend a lot more than a doll would cost just to find out more about the kittens?"

"Sure," said Old Teaser. "He's gotta find out if that ol' cat's got rabies. You better play with all the ol' dolls you got now. Don't be an ol' crybaby all your life."

The next pet was a baby thrush, which was taken into the Answith family to keep it from falling prey to cats or dogs. Both Old Teaser and little Claribelle refused to be serious grub and bug hunters for it. Little Claribelle was willing to sacrifice all her own meat for it for a few days, but childlike she soon tired of cage cleaning chores. They had a lot of fun playing with it on the lawn. Once Old Teaser, who could not repress the aboriginal yells in him, frightened it. That night it roosted in a tree. After a day or two it could fly well enough to join respectable thrush society. They saw no more of it.

Before the advent of the next pet there were a number of incidents which gave the Answiths some concern about Claribelle. Every dog and cat in the neighborhood knew her, and she was always bringing some stray animal home. Several times she was able to restore lost pets to their owners. There were scratches from a dog and three cats which kept her parents worried until the animals had been observed the requisite periods. Claribelle just seemed unable to learn how to avoid these might-be-serious accidents. Scolding did not make her control her sympathies. Old Teaser was different; he would rather be savage and heave a rock at his bears, lions and tigers, which were really only dogs and cats.

Then a rabid dog, which Claribelle had associated with slightly but had not touched, came through the neighborhood. It bit a boy who lived across the street. Claribelle awakened a little more to her risks. She saw the doctor stopping daily to give her friend his "shots" to keep him from having rabies. Another young savage happened to be at the Answith home one afternoon when Claribelle came home from school, escorted by another stray dog. The boy began to tease Claribelle and the dog and got nipped. His irate parents were all for holding the Answiths responsible for the quarantine expenses of the dog or for possible damages.

This incident drove a little more of her social responsibility into Claribelle's mind. It was not her dog, but she was ready to harbor it, she was lectured. Even if she did not care whether she contracted rabies herself, she could see how other people felt about their children. How about thinking about such things? Dr. Answith was really very stern about it.

One late spring evening, Mrs. Answith and the two younger children were out in the yard. Little Claribelle saw a tiny cottontail rabbit. Old Teaser helped catch it and thereupon declared himself the sole possessor of said bunny. The argument started because Claribelle demanded discovery rights, which she estimated to be at least 50 per cent interest.

Mrs. Answith arbitrated in her favor but again laid down the family rule for pets: Be kind to animals.

Since the bunny was so young that it was obviously an orphan, there was a burdensome feeding problem. Old Teaser sold out for 1 cent the next day, and Claribelle had sole possession, responsibilities and household liabilities. But she was equipped for the job. One of her doll's feeding bottles was sterilized daily by boiling, and she warmed milk and struggled to teach the tiny rabbit to drink from it. After a few days the little fellow really filled out and began to take an interest in life and clover leaves. Meanwhile, Old Teaser scoffed and insisted that Claribelle cut all the grass for the thriving bunny's bed and board.

"Sometime you'll get tularemia from your pet fanciering," warned Old Sock, the college sophomore. He had been reading his father's medical journals again. "That's a disease of rabbits, rodents and man!" His brows would have beetled if they had been heavy enough.

"My bunny doesn't have—uh—that," Claribelle insisted. "It's been in quarantine."

"Out of the mouths of babes!" sniffed Judith, the Dumb Cluck, enjoying Old Sock's setback.

"Just the same, when that rabbit came into this family menagerie it did not have a clean bill of health. How do you know, Dumb Cluck, that its mother didn't die of tularemia?"

"My bunny's not sick!" Claribelle half cried.

"Never mind, Claribelle, Old Socrates is just showing off," Judith soothed.

"Everything I said is correct to a gnat's eyelash!"

"So what!"

But as the little cottontail became a bigger cottontail its bird cage became irksome. For hours each day it poked its nose between the wires in futile efforts to see more of the world. Gradually the remainder of the family began a subtle campaign for the rabbit's freedom, except Old Teaser who was not exactly tactful.

Little Claribelle went through the emotions of a parent who realizes a child has grown up and is anxious to fight life's battles alone, only she went through them much quicker. Old Teaser was for turning the rabbit loose and practicing on it with his bow 'n' *(Continued on page 954)*

KITCHENS in the CLOUDS

By MARION DARTNELL

LITERATURE TEEMS with feasts and gourmands. Colossal feasts such as the one King Grangousier provided for his son Gargantua on his return after defeating King Picrochole. Gargantua possessed all the wonders of an appetite and a thirst which a lively imagination could invent and a masterful command of language could adequately paint. The moment Gargantua was born he cried out "Drink, drink" so lustily that no less than 17,913 cows had to be provided to supply this vigorous babe with milk.

There were huge nuptial feasts such as the marriage feast described in Cervante's immortal romance "Don Quixote." The first thing that presented itself to Sancho's sight, we read, was a whole bullock spitted on a large elm. In six huge pots around, entire sheep were swallowed up and floated like so many pigeons. Hares ready flayed and fowls ready plucked hung on the branches. Sancho saw bewildering quantities of venison and wild fowl hanging about on the branches of the trees; he counted skins full of wines and hills of white loaves and cheese piled up like a stack of bricks. And as the feast was a Spanish one, there were ready two cauldrons of oil, larger than dyer's vats, for the inevitable frying.

Feasts started at 5 in the afternoon and lasted until 3 in the morning, "at which time it was convenient for all estates to draw to their rest." Such was the gorgeous meal provided by Henry VIII at Hampton Court to outvie Cardinal Wolsey's feasts:

Boar's head and Warden pie
Pineapples boiled in Treacle
Cold Cod in aspic
Suckling Pigs stuffed with Medlars
Roc's eggs and Ostrich livers
Dormice stewed in honey
Peacocks on Toast
Old ale, mead, metheglin, hippocras
Mulled sack and tar water

But the longest meal in the world—there being about 200 miles between fruit cocktail and dessert—is a twentieth century contribution to gastronomic lore. It is the one that hundreds of men and women enjoy daily while traveling on airliners. As the plane cruises at 3 miles a minute, smoothly unrolling the country underneath, passengers recline in their chairs and eat such a meal as this:

Orange and Grapefruit Cocktail
Ripe Olives
Baked Sugar Cured Ham with Glacé Pineapple
Sauce Champagne
Candied Yams Buttered Peas
Dinner Rolls Bran Muffins
Salad de Saison
Ice Cream or Pudding
Assorted Cookies
Coffee Tea Chocolate

Such a dinner eaten aloft may well last 200 miles from fruit cocktail to dessert. And if you go in for an after-dinner cigaret, then the meal lasts many miles longer. Cigarets burn more slowly 10,000 feet in the air.

A three course dinner high in the air on a trip by plane from Chicago to New York or some other distant city is a remarkable achievement, although the traveler usually accepts it as casually as he would a good meal in one of the best hotels.

Keeping food in condition for serving at a high altitude is no simple matter. Heat is lost rapidly once the food is removed from its specially constructed container. Coffee becomes lukewarm in no time at all, once it is exposed to the thin, chilling air. Bread and rolls dry out quickly in high altitudes. Yet so well has everything been planned that in no time at all the deft stewardess can set before you, hot and tempting, a delicious meal.

A "maître d'airlines" and an assistant closely supervise the food service on the big mainliners. Every menu is planned and served aloft to employees for testing, as high altitudes variously affect appetite and digestion.

Meals must be planned according to other restrictions. With space limited, wide variety is impossible. Consequently the commissary has studied people's tastes and has limited the menus to general favorites. Nor can certain foods be served in the air. There are no stoves on airliners as weight alone would bar them; and in addition, space is always limited.

Sizzling steaks are thus out, for one thing. Odoriferous vegetables are out for another, because this rare atmosphere intensifies and carries odors. For a long time fish were out also. Then it was discovered that fillets of haddock, halibut and cod could be cooked, taken aboard and kept until serving in sealed, smell-proof glassine bags.

Only foods which are generally popular and enjoyed by the majority of passengers are listed on the menu. Chicken, turkey, ham and lamb chops are the meats most commonly used. Fillets of haddock, halibut and cod are served on Fridays. Green vegetables such as lima beans, peas, asparagus and string beans are included. Breads that have a high moisture content, such as rye, raisin and Boston brown bread, are used extensively, as are melba toast and crackers. Cookies are served instead of cake. The most popular desserts are ice cream with cookies, Bavarian cream pudding, apple pie and assorted cheese.

The equipment and food essential to serving a meal aloft are assembled on the ground in an immaculate kitchen at the airport. The pilot's radio message on exact arrival time and number of meals required is the signal for action at the food depot. For dinner the dishes and silverware—all fabricated of the lightest material available—are packed into a portable cupboard and taken aboard. For luncheon, covers are removed from special, lap-fitting, featherweight papier mâché trays, and their compartments are filled with fruit cocktails, ripe olives, cookies, crackers and other foods which do not require cooking. Covers are returned, and the filled trays are stored aboard.

Meanwhile other foods not requiring heating are made ready. Bread and rolls are packed in glassine bags. Salads are packed in covered paper cups, upside down to be ready to serve when emptied.

Hot foods are prepared at the last possible minute. Beverages are poured into large glass-lined thermos containers to be locked upside down in the airliner kitchen. A spigot releases the contents when needed. Special air valves, or steam vents, are attached to each container to release the pressure caused by high altitude before the spigot is turned on, for at a high altitude in an ordinary container the coffee would boil out and probably scald the stewardess.

Then meat and vegetables, steaming hot, are packed in scientifically designed gallon thermos jugs, which are then placed in unusually thickly insulated containers that preserve the heat up to the minute of serving aboard the plane. Ice cream is sealed in similar jugs. Everything is now in readiness for the incoming passengers.

Later, miles away, food appears from the galley in the rear and a stewardess (or steward) places before each passenger "the longest meal in the world," which was so carefully and expertly planned.

United Air Lines

American Airlines, Inc.

ALL LIQUIDS MUST BE CARRIED IN THERMOS CONTAINERS, WHICH ARE PACKED IN AN IMMACULATE KITCHEN AT THE AIRPORT. LATER ON, AN ENTIRE MEAL EMERGES FROM THE SMALL GALLEY IN THE REAR OF THE AIRPLANE AND BECOMES THE LONGEST MEAL IN THE WORLD—200 MILES BETWEEN FRUIT COCKTAIL AND DESSERT.

Tuberculosis up to Date: VII

B. P. POTTER *summarizes the difficulties which are encountered in treatment by pneumothorax and tells how to overcome them*

IT HAS BEEN shown that the most frequent obstacle to effective collapse of cavities by pneumothorax is adhesions. The mere presence of adhesions is not, however, any indication for active attack on them. One must first become convinced that they interfere with closing of the cavity.

There are four ways of managing a case that presents adhesions. The simplest, most direct and effective way is by severing them, a procedure known as pneumolysis. The vast majority of adhesions are not suitable for cutting either because they are broad and short and too close to the cavity or because they contain lung tissue or are so located as to be difficult or impossible to reach. It may be said that out of every hundred pneumothoraces complicated by adhesions, about ten will present the type suitable for cauterization. The cutting of adhesions is a relatively simple procedure but can be performed only by one who is trained in surgery and who is prepared to tackle any complication that may arise during the process of cutting. The actual operation may be done in one of two ways. One method consists of making an incision between the ribs over that part of the chest which will give best access to the adhesions. The incision is carried through the pleura, and by separating the ribs one can locate the adhesions by direct light and then sever them by the use of either the scalpel or the electric knife. The second method, most commonly used, is to locate from fluoroscopic and x-ray studies a region on the chest where best access to the adhesions will be obtained. The operator then makes an opening into the chest and passes through this opening a special apparatus by which he can locate the adhesions and sever them by cauterization. In a large number of patients in whom adhesions are cut, fluid develops; but this fluid is usually of the same nature that so often follows pneumothorax. Now and then, but not more often than is encountered in pneumothorax, the fluid turns to pus. Other complications may follow this operation; but they occur rarely and need not concern us. All in all, if the patients for pneumolysis are properly selected and if one acquainted with the procedure performs the operation, the results are excellent.

Those adhesions that cannot be cut by this simple method divide themselves into two groups. The first group includes those that permit a certain degree of collapse of the diseased lung and because of their position or arrangement can be further relaxed by elevation of the diaphragm. In such instances, severing of the phrenic nerve may give sufficient rise of the diaphragm to bring about relaxation of the adhesions with effective collapse of the lung by further pneumothorax. The number of patients in whom effective collapse of the lung can be obtained in this way is rather small. The greater number fall into the second group, in which the adhesions are so numerous or the two layers of the pleura so completely adherent that either little or no collapse can be obtained by pneumothorax. About one third of this group can be further helped either by the phrenic nerve operation or by thoracoplasty.

Cases suitable for phrenic nerve operation are usually those in which the cavity is of small or moderate size and which can be easily compressed. However, even large cavities occasionally close following a diaphragmatic paralysis.

In cases in which pneumothorax is either unsuccessful or impossible the phrenic nerve operation should be considered, if it is felt that the limited relaxation obtained by this operation may result in closure of the cavity. In one sanatorium, in about one third of every hundred cases the cavity closed within six months to a year following paralysis of the diaphragm.

The operation consists in either severing, crushing, injecting with alcohol or teasing out the nerve which runs from the large bundle of nerves in the neck to the apron which separates the abdomen from the chest cavity. This apron is known as the diaphragm, and the nerve which feeds it with energy for its movements is called the phrenic nerve. The procedure is simple. A short incision is made immediately above the collar bone, and then by separation of the tissue beneath the skin, the nerve is located and managed in one of the ways mentioned. If the nerve is cut, there ensues a temporary paralysis of the diaphragm; but its move-

ments return in from six months to a year. If by that time the cavity is closed and the movements of the diaphragm have returned, a permanent paralysis may be established by relocating the nerve, 4 or 5 inches of which are then removed. If, however, the cavity is not closed or has not been affected after the motion of the diaphragm returns, and if other collapse measures are considered, the problem of a paralyzed diaphragm with the accompanying sacrifice of part or all of the normal lower lobe does not enter.

Finally there are those patients who to all intents and purposes are well, except that they have a productive cough and positive sputum. In all these a cavity is present. The question that arises is, "should these patients be allowed to return under some modification to their former activities or should an attempt be made to collapse the cavity by thoracoplasty?" Recently evidence was brought forth which suggests that patients who to all intents and purposes are well or so called "good chronics" live as long and do as well on routine life as those who are operated on. While this may be true in a small number of individuals in the prime of life or even in a larger number of elderly persons, it does not appear to be the case in the vast majority of these cases. That many of the patients live on for years with a cavity is not to be denied, but the consensus is that in the majority the span of life from the time the cavity appears is relatively short. Even those who live on for years must limit their activities more or less and are usually persons whose economic status permits yearly intervals of rest treatment.

It is not to be concluded from this discussion that all those operated on have their life prolonged or that they are able to return to their former activities and continue to do well. If, however, the operation results in effective collapse of the cavity, it is found that about half of the patients return after proper convalescence to their former activities free from cough, expectoration and bacilli. In other words, these persons not only become free from their embarrassing symptoms but take their place in society emancipated from the class of probable contaminators. Furthermore, they acquire a more wholesome outlook on life in

THIS PATIENT'S HISTORY IN HIS FIGHT AGAINST TUBERCULOSIS IS SHOWN BY TWENTY-THREE X-RAY PICTURES TAKEN AT DIFFERENT TIMES IN THE TREATMENT OF THE DISEASE. AT UPPER LEFT ARE NINE OF HIS RIBS, WHICH WERE REMOVED IN THREE STAGES BY THORACOPLASTY.

Courtesy of Life

that they no longer need to walk with folded cups or napkins for collection of the sputum and thereby constantly have in mind that they are being regarded as individuals not desired. Aside from all this, the patient who has had a successful thoracoplasty is free from the fear of a fatal hemorrhage from the cavity or a hemorrhage which results in spread to the good side or other organs or from eventual involvement of the good lung or of throat and intestines by the bacilli which bathe these organs constantly.

It seems only logical to conclude that, granted that life may not be prolonged by thoracoplasty, it is made happier and safer in view of what has been said. Yet the fact should not be overlooked that an effective collapse of a cavity—be it by pneumothorax, phrenic operation or thoracoplasty—not only saves those who would succumb to the disease if left alone but prolongs the life and makes it a useful one even for the "good chronic."

The operation should be planned so that sufficient number and length of ribs which overlay the cavity will be removed and that the removal of these ribs will be done in several stages. Heretofore this principle was not generally appreciated, and therefore there were many failures. The number of ribs to be removed cannot always be accurately estimated before operation. While before operation the lower limits of the cavity may be covered by the sixth rib, the picture changes after the operation, when the partly collapsed lung drops toward the heart and downward. It may be then found that the cavity has dropped one or two spaces lower, so that finally the number of ribs to be removed will be greater than estimated before operation.

No one should consent to thoracoplasty with the expectation that the operation will be complete in one stage. While occasionally this may happen, in the vast majority of cases two and often three stages are necessary. It is this graded operation, however, which is responsible for the comparatively few deaths and accidents that follow thoracoplasty. The surgeons who have kept these principles in mind have reduced the death rate following thoracoplasty to as low as four out of every hundred, with an average of ten, and have increased the number of effective collapses tremendously.

Finally, the fourth way of managing cases in which pneumothorax is unsuccessful or cannot be induced is by apicolysis. This consists in removing a small portion of the third rib in the back and then by careful manipulation with the hand, the apex, the uppermost part of the lung, is peeled away from the chest wall. The space which results is then filled either with fat, muscle tissue or paraffin. In this way, cavities which are located in the apex may be completely collapsed. The operation is not generally accepted because the paraffin frequently works itself out to the wound or through the bronchus. If muscle or fat is used, absorption of these tissues is rapid and results in an unsatisfactory period during which collapse is maintained. Furthermore, even in the cases in which these complications do not take place, one can never be certain of the fact that the cavity is closed because the paraffin obscures the lung tissue, making it impossible to visualize the underlying lesion. It is for these reasons that this procedure is sparingly utilized in this country.

[NOTE.—In the November issue, Dr. Potter will conclude his series with a discussion of the treatment of extrapulmonary tuberculosis.]

HEALTHGRAMS—*from articles in this issue*

¶Health means wholeness, the working together of all parts of the body, which accomplishes what no single part may do alone. *See page 907*

¶The more dominant the individual, the more rapidly does he read and write but, strangely enough, the more slowly does he walk.
See page 878

¶The dominance of one lobe of the brain is a recent development in evolution and is a fundamental character distinguishing man from all other members of the primate order.
See page 893

¶The final test of any agent in medicine is: Is the drug likely to do more harm than good?
See page 890

¶Adopt a good philosophy of living, and you will have little emotional fatigue to overcome.
See page 887

¶The stigma of failure should not be attached to any child; he should be continually learning and succeeding. *See page 930*

¶The longest meal in the world—there being about 200 miles between fruit cocktail and dessert—is a twentieth century contribution to gastronomic lore. *See page 918*

¶Safe reduction of weight must have a strictly individual regimen adjusted to the individual problem, and it must be adhered to faithfully.
See page 896

William Sharp

The Diagnosis

MEETING the MOSQUITO MENACE

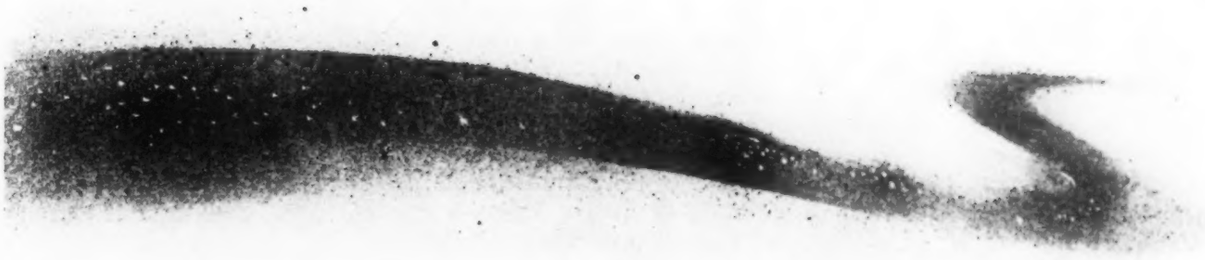
***FREDA CROMWELL** tells how a high school group made practical application of its health education*

SEASONAL SICKNESSES carried by the mosquito have deprived the South of the prosperity to which its heritage of climatic conditions and natural resources has entitled it. The South has been affected by the disease-bearing insect from its early history to the present time. The stories of past yellow fever disasters and the realities of present chills and fevers in a malaria-infested Southland are among the first impressions on Southerners.

Malaria persists in its sly, evasive manner to take its greedy toll except in specific centers where it has been effectively controlled. Most people in malarious sections have seen sufferers from this disease toss on feverish beds; they have known malaria to steal health, strength and ambition from its victims, keeping them chained to poverty; they have witnessed the needless death of sufferers from malaria or a combination of it and influenza or pneumonia, a complication bringing almost certain death.

Economically, also, this plague is a grievous burden to all southern cities. Malaria saps the energy of laborers when the cotton-picking season comes—the time when labor is at its greatest demand—and employers suffer big losses. Such losses affect the buying capacity of all those involved. Thus, the South's merchants must bear part of the brunt of the malaria mosquito's hostile attack on the country, and Southern population must be sacrificed until malaria is eradicated.

Formerly, many parts of the South were harassed by the explosive outbreaks of yellow fever. Such an outbreak in Memphis, Tenn., wrote a tragic page in the city's history. This pestilence that had baffled scientists for centuries broke out disastrously in 1878. As fearful as Black Death and more awe inspiring than the death angel in Pharoah's time, the scourge swept from door to door and exempted neither color, race nor creed. In a mad rush, all but 19,500 of the population fled the city. Of those, 5,150 had died when the epidemic had run its course, for with cold weather it disappeared as mysteriously as it had come. That infamous year cost the pioneer city three fourths of its population. Other epidemics had visited this city and others, and other epidemics followed ere the frantic fighters of death found that the strange yellow fever is a mosquito-borne disease and can be extirpated.



The South began slowly to use preventive methods to combat yellow fever and malaria after it was discovered that the mosquito is responsible for the spread of both. Few cases of yellow fever have occurred in the South since the beginning of the twentieth century; but malaria, being less dynamic, has been slow to impress Southerners with its disastrous importance. However, fourteen states in the South are carrying on war against malaria more persistently since financial aid has become available through the ERA and the WPA funds.

During the last sixteen years, Memphis has been one of the most progressive centers in the movement to wipe out malaria; and it seems fitting that the Howard-Krauss Society should originate there on the banks of the Mississippi in the center of the South. This high school organization was formed at South Side High School to help lead the way out of that sickness, suffering and death which can be prevented through mosquito control.

The society had for its leader Miss Annekay Tharp, a Memphis woman whose parents, as children, saw effects of the epidemics of yellow fever. Miss Tharp's interest in the work dates back to the rumor of an outbreak of yellow fever in 1905 in Memphis, when she, then a child, was taken to the mountains to escape the reported epidemic. Successive tragedies of malaria impressed her with the need of teaching the public the necessity of mosquito control, so when the opportunity came, she entered her pupils in the National Gorgas Essay Contest.

In 1933, while preparing students for this contest, she suggested that aid from the pupils' family physicians be sought. Major J. A. LePrince, General Gorgas' right-hand assistant at Havana and Panama, and head of the Malaria Investigation Headquarters in Memphis, is an annual speaker to Miss Tharp's English class before members commence work on their essays. He has always been a willing cooperator in any work that South Side has undertaken to spread the knowledge of the importance of the control of mosquitoes, and he has often offered welcome suggestions for its work.

In 1935, after the high-water stage of the Mississippi had caused great anxiety to Memphians for its bearing on mosquito control throughout the valley area, Major LePrince conceived the idea of a mosquito float to be drawn before the spectators during the Cotton Carnival, which gets most of its visitors from the Mississippi Valley area. The plan was enlarged on until the art, music, manual training and English departments necessarily became teeming workshops to turn out the "unique and effective Mosquito Pageant" enacted in the Cotton Carnival parade on May 10 before thousands of witnesses.

When there was a lapse of contests during the year 1935-1936, the valedictorian of that graduating class wrote and delivered an address, "William Crawford Gorgas, Conquerer of the Unknown." The men and women who filled the high school auditorium that night were impresssed by the picture of the genius who proved that that menace on wings, which had driven the French from Panama when their engineer attempted to construct a canal, can be controlled. This valedictory served to interest the community in the work which was to mean so much to one of South Side's clubs.

In the annual talk to the school in 1936, Major LePrince suggested the organization of a club so that more might be done toward collecting reference material for the annual essay contest and toward eliminating insect-borne disease. The students were organized; a simple constitution was drawn up; officers were elected, and Howard-Krauss Society was unanimously selected for the title.

Both Howard and Krauss are names revered in the history of disease. Howard has meant something to suffering humanity since about the middle of the eighteenth century, when the philanthropist John Howard, an untitled humanitarian, started the great prison reform which astounded the world. Though most of his life was spent in inspecting and improving prison conditions in the countries of Europe, toward the end he became conscious of another great need for his energies, and he began to work to prevent the communication of contagious dis-

eases. His death of camp fever came five years later while he was investigating the spread of that disease.

His name, however, did not die. During one of the early epidemics of yellow fever in New Orleans, two brothers, who were clerks in a store there, hunted cases of the disease and gave the medicine advised by their mother, who had had previous experience with the "black vomit." Moneyed young men joined them, and the group adopted the appropriate name of Howard Association in honor of John Howard. The roll soon included doctors and nurses willing to give up their lives that the suffering might be comforted, and it spread to other cities wherever the disease threatened. An inspiring monument in Elmwood Cemetery commemorates the sad fate of the "Howards" in Memphis in 1878.

The club at South Side High School felt that stone is not a sufficient memorial to those men and women who sacrificed their lives for suffering humanity. They knew that the work of the Howard Association should not be allowed to "perish from the earth" until it is completed, and they believed that nothing more fitting and proper could honor these dead than a live organization brought together to carry on the work which they had "so nobly advanced." Thus with hearts filled with honor and admiration for the memory of that pioneering group, the new group voted to use its title.

Yet, as much as the Howard Association inspired the body, there is another reason for adopting "Howard" for part of its title. This reason is of great importance to the charter members of the society, who chose the name for their own, for it incorporates the respect due Dr. L. O. Howard. This chief of the Bureau of Entomology was the first man to impress the importance of mosquito control on the people of the United States through books about insects. The society feels that it is working with Dr. Howard and is honored in assuming his name.

Krauss was selected as a tribute to Dr. William Krauss, who spent most of his life in Memphis, dedicating himself to science. He was associated with two Memphis hospitals and taught in the medical colleges there during his career. He was well versed in pathology, bacteriology and tropical medicine, excelling most authorities in the last named field. Dr. Krauss truly became a "friend in need" when the yellow fever epidemics occurred in 1897 and 1898; he was then a diagnostician. When x-ray machines were invented, Dr. Krauss saw the great opportunity for research and was the first Memphian to have one. The crude machine was without protective devices, and his left hand was injured by x-ray burns. The burns refused to heal, finally became cancerous and caused his death. He had lived a life of heartache, pain and sacrifice for others, but he was forced to die in poverty and receive attention at the hands of charity. Since he had contributed so much to the history of medicine in Memphis and had been closely associated with mosquito-borne disease, the organization at South Side elected to wear the name of Krauss.

The members set to work in earnest on the essays for the eighth Gorgas Essay Contest. After weeks of hard work, some sixty essays were written, which meant that sixty or more homes had definite knowledge on the control of insect-borne disease. The best ten of these were selected and sent to the editor of one of the local newspapers for judging, and a school prize, donated by an interested scientific group, was awarded. South Side High School's entry then won the state prize. The Second National Award also went to that South Side entry. These honors created interest for the future contests.

The society had accomplished what it had set out to do: spread the knowledge of the necessity of mosquito control, for as "charity begins at home" the work on the essays gave the members a background for their future work. Others were influenced to study by the articles appearing in the school periodical, *The Triple S.* Every phase of the development of the contest was also brought to the public's attention through newspapers. Some of the important issues of *The Triple S* were sent to points all over the world to interest our foreign friends or tell those already interested about the progress of the club.

The club artists carefully painted attractive, interesting posters for the year's Cotton Carnival. After details had been attended to, and criticisms had resulted in improvements, these posters were sent to the big department stores in downtown Memphis to be placed in their windows for display. The attention of the public was continuously called to these undertakings of the organization through the local press. Inestimable is the value of such activities, and they are certain to have continuously accruing benefits.

The society in 1937 made such a notable exhibit for the Memphis Pest Control Convention held at a local hotel that it attracted scores of visitors to its booth. Each visitor was presented with a four-page leaflet telling of the work of South High School and the Howard-Krauss Society in attempting to eradicate the insect which is costing the United States 100 million dollars and thousands of lives annually. This was the work of the first Junior Society. The alumni have recently reorganized, and great accomplishments are expected from them.

The Howard-Krauss Society is "Not finished, just begun." It has many possibilities with its earnest, young, energetic members. Other schools are already talking of starting similar organizations, for they see what this one has done in one year in promoting the control of mosquito-borne disease.

By HOWARD V. MEREDITH

Bodily Changes in Adolescence: II

[NOTE: We are sitting in on a consultation in which a parent is learning what relation growth bears to adolescence.]

CONSULTANT: Let us assume that we have measured a hundred boys sometime before adolescence—say at 10 years of age. Then let us also assume that we have remeasured the same hundred boys sometime during adolescence—say at 14 years of age. Now, we will group together the top twenty of the hundred boys measured at 10 years of age and call this group "tall." Likewise, we will group together the lowest twenty boys at 10 years and call this group "short." The remaining sixty boys we will refer to as the "medium" height group. Now may I have your questions?

PARENT: First, I should like to ask whether the twenty boys who make up the "tall" group at 10 years are the twenty tallest boys at 14 years.

CONSULTANT: No, not more than one half of the boys in the "tall" group at age 10 are in the "tall" group of 14 year olds.

PARENT: What has happened to the other half of the boys who were tall at 10?

CONSULTANT: They are to be found in the 14 year old "medium" group. One or two of them are quite low down in this group, though not quite far enough down to be included in the "short" group.

PARENT: How many of the sixty boys of the "medium" group for 10 years are in the "medium" group of 14 year olds?

CONSULTANT: About forty of them. Roughly, ten have moved up into the 14 year old "tall" group and another ten down into the 14 year old "short" group, and many of the remaining forty have changed their position in the "medium" group from low to high or high to low.

PARENT: Are any of the twenty boys of the "short" group for 10 years of age among the twenty tallest boys at 14 years of age?

CONSULTANT: No, there have not been any *extreme* changes. A boy who is distinctly short at 10 does not become tall at 14, nor does a decidedly tall boy at 10 become short at 14.

PARENT: I should be interested now to know how great some of the height changes are in terms of inches.

CONSULTANT: Here are a few examples of marked changes. First, Tom and Dick each measured 52½ inches in height at 10 years of age. At 14 years of age, Tom measured 66 inches and Dick 60 inches, or 6 inches less than Tom. Second, Sam and Ted each measured 50 inches in height at 10 years of age. At 14 years, Ted measured 57 inches and Sam measured 62½ inches, or 5½ inches more than Ted. Third, Bill and Harry each measured exactly 61 inches in height at 14 years of age. Measurements made when the boys were 10 years of age showed Bill to be 5 inches taller than Harry. Fourth, Dave measured 3 inches taller than Steve when each boy was 10 years of age. By 14 years of age, Dave and Steve had almost reversed position, since Steve now measured over 2½ inches taller than Dave.

PARENT: How do you account for such marked changes in the growth of normal, healthy boys?

CONSULTANT: The changes are directly related to the age at which the adolescent spurt in height begins. Tom, Sam, Harry and Steve each began the adolescent acceleration in the twelfth year. Dick, Ted, Bill and Dave did not get their spurts in height until after 14 years of age—in the meantime, they were becoming continually shorter and shorter in relation to boys like Tom and Sam.

PARENT: I am somewhat surprised at this explanation. It appears quite reasonable; yet it does not harmonize with my previous understanding of the matter. I feel sure that I have heard or read statements to the effect that tall children reach their adolescent acceleration early, that children of medium height reach it

at an intermediate age and that short children reach it late. According to your explanation, however, it appears that children of every height may spurt either early or late.

CONSULTANT: The concept that children who are tall before adolescence reach their adolescent spurt early, like the concept that children who are tall before adolescence remain tall during adolescence, is a widely popularized partial truth. There is a slight group tendency for children who are tall before adolescence to reach the spurt earlier than children who are short before adolescence; nevertheless, there are a large number of individual exceptions. As a matter of fact, the individual exceptions are far too numerous to permit one to predict with reasonable accuracy the age at which a preadolescent child of any given height will get his adolescent growth spurt.

PARENT: What is the situation after the period of the spurt is past, that is, after the individuals who are late, as well as those who are early, have undergone the adolescent acceleration? Are the children who are tall before adolescence tall when they reach adulthood?

CONSULTANT: Children who are tall before adolescence are more likely to be tall as adults than they are to remain tall throughout the adolescent years. This follows, as I think you suspect, from a number of cases similar to that of Jerry. Jerry was "tall" at 10 years of age, "medium" at 12 years of age and fairly low in the medium group by 14 years of age. He began his adolescent acceleration during his fifteenth year and by 17 years of age he was up almost into the tall group again. Nevertheless, it cannot be asserted that all children who are tall before adolescence will be tall as adults. Prof. Franz Boas of Columbia University has reported a study which indicates that for any series of individuals of a given height—say for three boys of the same height at age 10 years—the boy who has his spurt in height first will be the shortest as an adult; the boy who has the spurt second will be of intermediate height; and the boy who has it last will, in adulthood, be the tallest of the three.

PARENT: If we may turn now to a different topic, I should like to raise a few questions with regard to sex differences. First, is it true that girls are taller and heavier than boys during adolescence?

CONSULTANT: The answer to this question will be most meaningful if it is given as part of the entire pattern of growth in height and weight for the period from childhood to adulthood. During the childhood years the average boy is both taller and heavier than the average girl. The average girl, however, reaches her adolescent spurt in growth earlier than the average boy and, as a result, becomes taller and heavier than the average boy at about 11 years of age. The later adolescent spurt for the average boy causes a return to the childhood relationship, so that from about 14 years of age on into adulthood, the average boy is both taller and heavier than the average girl.

PARENT: Can one summarize your last remarks by saying that, on the average, boys are taller and heavier than girls at all ages between childhood and adulthood, except during the period from about 11 to 14 years?

CONSULTANT: Your summary of the matter is adequate and quite correct.

PARENT: Are there not individual exceptions to this average pattern? I call to mind two 8 year old children, Mary and Paul. Mary is at least an inch taller than Paul. But then, too, there are certainly many adult women that are both taller and heavier than a large number of adult men.

CONSULTANT: Your observations are pertinent. There are many individual exceptions to the average pattern. The average pattern, of course, is obtained by taking a large number of boys and a large number of girls—say a hundred or more at each age—and finding the average height and weight for the boys at each age and for the girls at each age. The average pattern of height at 8 years of age shows boys to be slightly taller than girls. Assuming we have taken a hundred boys and a hundred girls, this implies that roughly fifty boys measure more than the boys' average and fifty boys less and that fifty girls measure more than the girls'

average and fifty less. Now let us see how many girls are taller than the boys' average and how many boys are shorter than the girls' average. We find that about forty of the hundred girls exceed the average for the boys and that about forty of the hundred boys are shorter than the average for the girls.

PARENT: How many of the hundred boys at 8 are taller than any of the hundred girls?

CONSULTANT: Two boys are taller than any of the hundred girls, and two of the hundred girls are shorter than any of the hundred boys. As one might expect, the situation becomes reversed at about 13 years of age. Here, roughly, two girls in a hundred will be taller than any boy in a hundred sample, and two boys in a hundred will be shorter than any girl in a hundred sample.

PARENT: During the childhood years, does the average boy exceed the average girl in most measurements of the body or only in height and weight?

CONSULTANT: The average boy exceeds the average girl in a large number of measurements in addition to height and weight. Boys' averages are slightly larger, for instance, in width of shoulders, in circumference of chest, in length of legs and in girth of arms. It cannot be said, however, that boys are larger than girls in all measurements of the body. A recent study has shown that girls exceed boys in average girth of the thigh at all ages from 4 years up to adulthood.

PARENT: Is it also true that girls exceed boys in measurements other than height and weight during the period from about 11 to 14 years?

CONSULTANT: Yes, the average girl exceeds the average boy in several other measurements during these years—such measurements, for example, as sitting height, length of legs, width of hip and girth of arm. In a more numerous group of measurements, however, the average girl closely approaches the average boy though does not definitely exceed him. Examples here are breadth of shoulders, circumference of chest, girth of forearm, strength of grip and breathing capacity.

PARENT: I understand that puberty is defined as the earliest age at which the individual is capable of bearing offspring. May I ask what physical signs students of growth use as indicators that the individual is at, or near, the age of puberty?

CONSULTANT: In the case of girls such criteria have been used as enlargement of the breasts, growth and pigmentation of the axillary hair and occurrence of the first menstrual flow. In the case of boys the available criteria include development of the axillary hair, "change" of the voice, secretion of the sperm cell, growth of the external genital organs and development of the pubic hair. The most commonly used indicators of the present time are the growth and pigmentation of the pubic hair in the case of boys and the menarche, or first menstruation, in the case of girls. *(Continued on page 944)*

Forecast for November

THOUGHTS FOR THANKSGIVING

"You must admit," said Bob Abbott, "that with all its faults this is a pretty good age to be living in. Every time I pay a doctor or a dentist for preventing trouble for us, I can't help feeling thankful we're living in this century. Every time one of the Abbott small fry presents a behavior difficulty that might become a serious problem if handled without understanding, I'm thankful again." (*Lucretia Penny* in "With All Its Faults.")

"So varied are the methods of anesthesia now available and so applicable are they to almost any conceivable situation that the conquest of pain may be said to have been achieved. It is now no longer necessary to 'grin and bear it' or to rely on imperfect and uncertain effects of crude methods of anesthesia." (*Robert A. Kilduffe, M.D.*, in "The Apple of Sleep.")

"Every child has something he can do well. This gift is his inalienable right to develop so that he can grow into a confident individual with positive attitudes which will vitalize his work and play." (*John Eisele Davis, M.D.*, in "To Every Child a Chance.")

"Again on Thursday, November 24, we will return to the old-time rites and customs that center around the Thanksgiving dinner, with its roast turkey, savory stuffing, giblet gravy, cranberry sauce and pumpkin pie." (*Harriet Morgan Fyler, Ph.D.*, in "An All-American Meal: Thanksgiving Dinner.")

Ewing Galloway

Stephen Deutch

A CHILD SHOULD BE CONTINUALLY LEARNING AND SUCCEEDING. HERE SHE IS BECOMING ACQUAINTED WITH THE PLIABILITY OF A MOUND OF CLAY. HER SUCCESS WITH IT DEPENDS ON LEARNING TO WORK WITH HER HANDS.

SCHOOL and HEALTH

Conducted by ***J. MACE ANDRESS, Ph.D.***
67 Clyde Street *Newtonville, Mass.*

SHOULD CHILDREN FAIL?

THE TOURIST who visits Boston may journey out to the Wayside Inn at Sudbury. It will be interesting to take the side road leading off the great modern highway. Here one may become for a moment oblivious to the problems of the age. The sign of the Red Horse still swings before the door of this famous hostelry. If one steps inside, one is back in colonial days. There is the fireplace where Longfellow and the poets gathered in days gone by. The old kitchen and the colonial furniture tell a story of a different age. Down the country road and to the right there is the little red schoolhouse which Henry Ford had moved from Sterling, Mass. It is supposed to be the schoolhouse memorialized in the the popular ditty about Mary and the lamb which followed her to school. The atmosphere of the old school is reproduced so far as possible even to the McGuffy Readers. Conspicuous in the equipment is the dunce's seat. Here sat the fool, the one who was at the foot of the class. On his head was the dunce's cap. Here sat the ne'er-do-well to receive the disapproval of the teacher and the gibes of the pupils. The birch is no longer in evidence. Perhaps it is worn out. In the long ago it had its place in correcting those who failed in their deportment and in their studies. This school expected failure.

The writer well recalls his reading classes when a boy. Alice is called on to read. She is admonished about her posture. Her toes must point straight ahead on a straight line, a crack in the floor. The book is in her left hand. "Just a moment," says the teacher. "Hold your book a little higher. That is right. Now you may begin." Meanwhile every pupil in the class has his eyes glued on the book, but for what? To note every error Alice makes. "What mistakes did Alice make?" the teacher asks. Every pupil strains hard to report some mistake so that he may be in the goodly company with raised hands. "If you please, teacher, there is a period after Afghanistan, and Alice should have let her voice fall there." "She mispronounced phlegmatic," says another. There were rare occasions when the teacher said, "That was excellent, Alice."

In the light of modern psychology we know that energies are not liberated in the atmosphere of defeat. The will is not exercised. Take, for example, the pupil found in almost every class who is afraid to recite. Defeatism has settled in the marrow of his bones. There is plenty of energy, but continued failure has blocked its expression.

The belief in the necessity and value of failure has become so deeply rooted that it is hard to eradicate. But a new educational

philosophy is under way. It is the psychology of success. If failure dampens enthusiasm, kills interest, interferes with the output of energy and builds unwholesome attitudes, success does just the opposite. It kindles enthusiasm and interest, makes play and work easier and more satisfying and encourages healthful attitudes.

One of the most interesting experiences I know is to see the transformation that may take place in the case of a feebleminded child. Ever since he could remember, Jimmy had failed. His family had laughed at him, his schoolmates had called him "dummy." The bitterness of life had made him revolt, and finally as a protest he became a delinquent. Then he was sent to a special school where he was understood and put with a group of children of the same mental capacity. He was given tasks that he was fitted to do; he was praised and invited to try something a little more difficult. He got his first satisfactions of success. Jimmy is no longer a problem but a well adjusted boy.

Happiness follows success. I remember seeing a group of feebleminded boys picking up stones in a field. They seemed to be very happy. When I expressed some measure of surprise I was told that they were happy because they were doing something they could do.

What is true of the feebleminded is also true of those with normal intelligence. It is my observation that one of the greatest problems in the teaching of drawing and painting is to prevent pupils from getting and holding the idea that they cannot do anything worthwhile. As long as they have this complex, energy will not function. One of the best teachers I ever knew was one who on going around to look at the children's work would exclaim, "That's fine, James. This is much better than you did last week. Let us see if we can't improve it." Such a teacher puts to work the children's interest and native ability.

We are too prone to think that some people are born to be or not to be mathematically minded and that as teachers we can do little about it. Frankly I am skeptical. Interesting experiments have been tried in which pupils who were failing in mathematics and hated the subject were given private tutoring under skilful teachers until they could do the regular classwork with satisfaction. They were then put back in their classrooms. With few exceptions they not only did their work and liked it but in some cases excelled in it.

It is inevitable that certain pupils should fail, but failures should ultimately be a step toward success. This was well expressed by Peter the Great of Russia. After suffering one defeat after another he is said to have remarked that the enemy themselves would teach them how to bring about their defeat. So children in their drawing, mathematics and athletics may learn to profit from their failures.

Then should children fail? Not if the school knows its business. The stigma of failure should not be attached to any child. He should be continually learning and succeeding. If he fails to do this, it should be a confession on our part that the school work is not adapted to individual pupils. Possibly the teachers were governed by a defeatist philosophy. In most cases, somebody other than the child is at fault.

Probably one of our greatest failures in schools today is the large number of pupils in our first grades that fail of promotion. Often this amounts to one-third the enrolment. Is there any really good excuse for these little folks getting an attitude of defeat, feeling "licked," in their first encounter with school problems?

I wish every teacher and school administrator might read thoughtfully and with regularity that classic in psychology, "Success and Failure as Conditions of Mental Health" in Burnham's "The Normal Mind." It sounds the clarion call for success!

A Day with a Visiting Teacher

MRS. RALPH MITCHELL
NEW YORK CITY

If you are not a visiting teacher you have doubtless wondered about the day's experiences that fall to her lot. Here are some leaves from such a teacher's diary. They tell about a typical day's adventures.

9 to 11 a. m.—My first visit will be to see Mrs. Hart, the mother of Carl, aged 7½, who has been referred by his teacher. He has repeated the A1 grade three times. He is a new pupil in the school, and his teacher wants to know more about him.

I climb the three flights of the rather rickety tenement and turn to the right. I knock. "Who's there?" "It's Mrs. Mitchell from school." "Oh, come right in." Above the rumble of the "El" I manage to tell Mrs. Hart that we welcome her to our neighborhood, and that Carl's teacher, who is very much interested in him, has asked me to call to see whether his mother will help us work out some plans for helping him to get along better. Mrs. Hart says she certainly will as she is worrying about his education too. She accounts for his failures by saying he has always been a sickly child, never really gets a good night's sleep because he wheezes and moans; he can't seem to get his breath properly. And then in the morning he can't get up. (This accounts for his teacher's remark that he is always falling asleep in the middle of lessons). Mrs. Hart says this has been going on for a long time. She hasn't felt able to afford medical care, and she's afraid of clinics. Her husband is a WPA worker, and they haven't anything extra to speak of. She rather hoped Carl would outgrow this trouble. When I ask about diet, susceptibility to hair or feather pillows and whether Carl plays with the black cat, Mrs. Hart is plainly puzzled. However, I tell her the little I know about the connection of these things in cases of asthma and allied illnesses. She is very much interested and says she will be glad to go to the Children's Clinic if I give her a note of introduction.

Too many plans at once will be upsetting so I don't suggest the psychologic test now. In the meantime, I tell Mrs. Hart that Carl may be placed in our afternoon 1A class if she wishes. Mrs. Hart is the right kind, and I leave, thinking what a changed boy Carl will be!

11 a. m. to 12 noon.—Now to the home of Mrs. Muller. This won't be so simple. We are old friends, and it had been my suggestion to her and to the school that Edward transfer from a regular class to an activity program class. She had not exactly resented the transfer—was willing to give us a chance—but she did not assent cordially. I had explained to her that he was overactive, and in this new type of class he might adjust better than in the other kind of class where strict discipline was enforced. I had described the type of program he would have in the new set-up just as I had observed it in Miss Robinson's class. Children were working together in a friendly sociable way. They were working in groups. I had been particularly amused at the little knot of boys who called themselves the Riddle Club. Miss Robinson had explained to me that reading as a subject didn't appeal much to these boys, but when they were given a chance

to expound their riddles at the daily 10 o'clock class program, there was no riddle book too hard for them to read. Here, helping each other was considered part of living. So Edward's habit of wanting to know what was going on all the time would be commended rather than scolded. There was plenty of activity for him, too. He had every opportunity to move about. There was a hammer and saw club for boys and girls who wanted to build things, and there were groups for clay modeling and painting and a library corner. Miss Robinson was always busy, mingling freely with the children, visiting group after group, explaining here, suggesting there. She never told her charges what to do or when to do it, for she said, "How on earth can they ever learn to be self directing if you never give them an opportunity?"

Edward has been in the class a month now. Through the increased facilities for observation in this class, we now know more about the child than before. If he is chairman of a committee, that is, the leader, he keeps his interest; but otherwise he is indifferent. His drawings are all about guns and swords and bombs, and he is always the hero who is flying high in an airplane, wreaking death on his victims below. He rejects all book learning, becoming abnormally upset. He doesn't work with other children. He prefers a job all by himself and doesn't seem to enjoy cooperative enterprise.

To my surprise, Mrs. Muller greets me cordially. She says Edward has blossomed out overnight. He has so much to tell his father that the boy and father have grown closer together. They find it a relief, too, not to have complaints from school. She wonders whether her own troubles had bothered her so that she had grown intolerant of the child; maybe she had been to blame because she now sees that the boy really has abilities of which she had been unaware. She shows me proudly a piece of soap sculpture that he has been working on with his little brother. This is quite a change from the quarreling that had taken place previously. Encouraged by this turn of events, I explain some of the things the teacher has told me and tell her about our child guidance bureau. I explain that she herself will be asked to visit with the social worker there fairly often and that Edward will be visiting with the doctor. In my mind's eye, I am already seeing Dr. Lanson with his whimsical sense of fun and his knowledge of child psychology giving Edward a chance to play out his fantasies—for that is the technic—and Edward's bright responsiveness to this.

Harold M. Lambert

AN IMPORTANT LESSON IN "HEALTH TEACHING THAT CARRIES OVER" IS THAT OF PROPER CARE OF A COLD.

12 to 12:45 p. m.—My next stop is at a neighborhood settlement house to arrange for some intensive recreational work for a group of girls who have been having a gang war. The feud had carried over into school, and the girls were disorderly there. I have felt that the only way to handle this was by redirecting their energies. But here, I had a double problem. I had to make the settlement feel that they wanted these girls, and I had to get the girls and their parents to accept the opportunity if granted. Fortunately, Miss Hill is in and can see me. In a few minutes we discuss cultural background, racial prejudices and individual and community needs. Without further ado she tells me to send the girls in with notes of introduction.

12:45 to 5 p. m.—A snatch of lunch and then to school. I see the assistant principal first of all. She asks me to take care of the Mothers Club for her for just half an hour. They want a talk on "How Can School and Home Work Together?" and she thinks I can tell them. I go down to the cafeteria where they are meeting. I know most of these people. I've been in their homes. We talk about the Parents Association and its relation to our new community project. I ask them how they liked the Forum discussion on "What Chance Does Your Child Have in This Community?" They are enthusiastic and are already working on committees. I tell them to remember the school is here to help them. After all, if there were no parents where would *we* be? There is general laughter, and I fly to my office.

2:15 p. m.—I haven't time for more than a glance at my mail. However, I must open the letter from the Council of Social Agencies. I helped organize that group ten years ago. They want me to serve on the membership committee. I haven't time either to report back to all the teachers, see all the children I want to see or do any of the phoning. The attendance officer stops to ask me a question; the school nurse refers a behavior problem to me, and a social worker comes in to ask help in making a school adjustment for a child.

3 p. m.—School is over. No bells are ringing. There is an air of peace and relaxation about the building. Here in my office is Miss Lee, a Chinese student who is observing my work. Mollie Cohen is waiting with an invitation to her graduation. Mrs. Nickopolous wants to know about a nursery school. Violet Matthews wants to talk things over. It does my social worker heart good to see us all here, representing so many races and religions of the world and all happy together.

5 p. m.—It's been a long day. Nine o'clock this morning seems ages ago. There's been much physical and mental strain but much satisfaction too. Plans started in the past are beginning to bear fruit; new seeds were planted today. Here I am again, with the rumble of the "El," going home now. I am tired—wonder whether Bobby Clark kept his clinic appointment. Guess I'll make that my first stop in the morning!

Health Teaching That Carries Over

ROSE ANNE BIGGERS
University High School
BOULDER, COLO.

It must be fun to teach health through interesting projects like those described in the following article. Perhaps you may find suggestions here for your own work.

IN THE year's health teaching in the fourth grade it was our aim to develop in the children right mental, emotional and social attitudes toward health with a responsibility not only for their own health but also for that of others in the home and community. A study of the work of some of our health heroes and what they have done for humanity was a part of the plan for accomplishing this purpose.

The teaching of such things as the need of care when one has a cold, washing hands before meals and keeping fingers out of the mouth can be done to a large extent by an emotional appeal. One little girl daily questioned the members of the family, including the grandparents, concerning the washing of their hands as they approached mealtime, exhibiting with pride her own shining hands.

But in addition to the emotional appeal, since boys and girls of the fourth grade are greatly interested in science, we approached our subject from the scientific angle also. The plan included along with our study two projects. One was a health and safety exhibit in which every child had a part, and the second one, an assembly program to be given for the whole school and interested parents, which was designed to teach both health and safety.

The exhibit was arranged on two fair-sized tables in the room. One represented a hospital with a number of doll beds, some of which were made and painted by the boys, who also made chairs and tables for the hospital. The bed linens were made by the girls, who also dressed up the dolls used for doctors and nurses in appropriate uniforms. An older boy, a Boy Scout, came in one day and gave a talk on First Aid and then some demonstrations in bandaging. The work of preparing the patients for the hospital was begun, and after several days every bed was filled and patients had to be turned away for lack of room.

Some of the exhibits on the table were as follows: A doll with face tied up had near it a placard, "Brush the teeth daily"; another doll in bed with a red nose and the placard, "They coughed and sneezed in my face"; "I played in the street" was the reading on a card by another bed on which was a doll with one arm bandaged and one leg in splints, while one large doll representing an older person had the placard, "Keep medicine bottles labeled." The placards were printed by the girls and placed on standards made by the boys. They also made two small ironing boards, on one of which was placed a cover with a large hole burned in it and a card, "Turn off the electric iron." On the other board was an iron with the cord hanging down within reach of baby hands (a doll sitting on the floor and reaching up for the cord) and the placard read, "Keep danger away from baby hands." Other placards used with their appropriate exhibits were, "I was roller skating in the street," "I played with a sick child" and "My home is burned; I played with fire."

Later these exhibits were placed in the hall where children of other grades could see them, and they were again used at the time of the program toward the end of the school year.

The program was the outgrowth of the work done in the classroom. A number of names of early scientists were selected for study early in the year, and the children were much interested in finding out the principal things that were done to protect the life and health of people in those days. One of the boys, with the help of his mother, made a microphone, and radio talks were broadcast to the class by different pupils, telling things they had found out about these health heroes. In order to make things more real a number of magnifying glasses, test tubes, slides, a microscope, lenses and a small machine for grinding the lenses were brought in from the science room. Needless to say, these were a great source of interest to the children. A father of one of the boys who was a physician became much interested in our work and gave us some valuable help.

The final program was participated in by every member of the class, about forty in number, and made use of many abilities represented by the different pupils. The entertainment included singing, playing of the harp by one of the girls, athletics, dancing, speaking, dramatization, drawing and chalk talks.

The first part of the program was given over to short talks about such historic personalities as Leeuwenhoek, who first made lenses; Pasteur, who made good use of them in his study of microbes; Roentgen; Jenner; Koch and others, and their work to make modern sanitary conditions possible. Short dramatizations were introduced along with some of the talks, such as a little scene with Pasteur and his wife as the characters, appropriately costumed. The boy who had charge of this part of the program introduced it by saying, "We cannot hang up pictures of these health heroes that we are going to tell you about, but as we speak of them we are going to place their names on our honor roll. As you hear about them see if you do not think they are among the world's best citizens and helpers of mankind."

Then as the talks were given, the Roll of Honor was built up by placing cards containing the names of seven health heroes on a tablet provided for that purpose. The lettering and preparation of these cards were done by the children.

The announcer for the second part of the program introduced it by saying that these men had made great sacrifices in order to make life safer and happier, and it was up to the boys and girls to do their part by building up good healthy bodies. He stated that they would now have a discussion of some of the practices which would help to do this, that it would be in the form of a questionnaire and that a Ladder of Good Health Habits would be built up. Captains had been chosen for each of these desirable practices who would answer questions put to them about such things as cleanliness, proper food, fresh air, exercise, sleep and cheerfulness. Other members of the group took part in answering as well as asking questions. As each one of these subjects was discussed a card bearing the name was placed on the ladder until it was filled. In discussing the subject of food, one of the girls gave a little jingle which a group of the children had worked out during class periods:

There are vitamins A and vitamins B,
There are vitamins C, and D, and E,
No doubt before long there'll be X, Y and Z.
This keeps some folks in a dreadful flurry—
After all these vitamins they try to scurry,

To Contributors:—*The editor of the School and Health Department will be pleased to receive articles dealing with the actual solution of concrete and practical health education problems in the school. Contributions on general theory are not solicited. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of* HYGEIA, *67 Clyde Street, Newtonville, Mass.*

But they cause me not a bit of worry.
For a balanced meal I try to eat
Of fruit and vegetables, milk and meat,
And to this I add a bit of sweet.
With such a meal as this you see,
I'll get all the vitamins from A to Z.

This part of the program was interspersed with dancing and one or two athletic stunts. At the close a large blackboard was brought onto the platform, and two boys gave a clever and effective talk on safety, drawing as they talked.

The preparation for the program, which closed the year's work, was made as far as possible in the free reading period and in regular health class periods. The class working together made up their parts and costumes and planned and helped to arrange the stage settings. About seventy-five parents were present, and all seemed to feel that the year's work and program had done much to create such attitudes and practices as make for better healthful living and a sense of responsibility to others.

Food Experiments for the Classroom: II

Fats

ETHEL AUSTIN MARTIN
Director of Nutrition Service
National Dairy Council

Children like to see and do rather than simply to read about health. Mrs. Martin in the second of her series of articles suggests some interesting experiments. Are you trying them out with your class? These articles offer the basis for a year's work.

THERE are many kinds of engines, but all of them have one characteristic in common; that is, they must have fuel in order to run. Out of fuel they make heat and power—power to move and power to do things. The human body is one type of engine. But instead of burning coal, wood or oil, the body burns other fuels such as bacon, butter, potatoes and molasses. A few typical fuel foods are shown in the accompanying photograph.

The amount of heat and power (energy) created by foods is measured in terms of calories. The calory is therefore one measure of food value, just as feet and inches are measures of distance. Children can learn to use calories as a measure of energy just as they use weights and measures, even though they do not have the background to understand fully how these units were established.

Calory Values of Foods

Foods differ in the amounts of heat and energy they can create in the body. Here are a few foods which demonstrate the fact that the *same* amounts of various kinds of foods have different calory values:

1 cupful butter	1,600 calories
1 cupful coffee cream	400 calories
1 cupful sugar	800 calories
1 cupful cabbage	50 calories

From this list we can see that a cupful of butter gives about twice as many calories as a cupful of sugar. A cupful of sugar, in turn, contains sixteen times as many calories as one cupful of chopped cabbage. Foods which are all fat, or which contain a large proportion of fat, furnish more calories than other foods. As this list shows, pure sugar (also starch) furnishes about one-half as many calories as pure fat. When either fats or carbohydrates are combined with other dietary essentials in foods, the calory value of these foods depends on the proportion of all the different ingredients present. If a food is dilute, perhaps is a liquid, the calory value is low by comparison with a concentrated food of the same general class. Coffee cream, for example, furnishes about one-fourth the calories provided by the same quantity of butter. Calory tables of common foods are available in textbooks on food and health. A study of comparative calory values will serve to amplify the points made here.

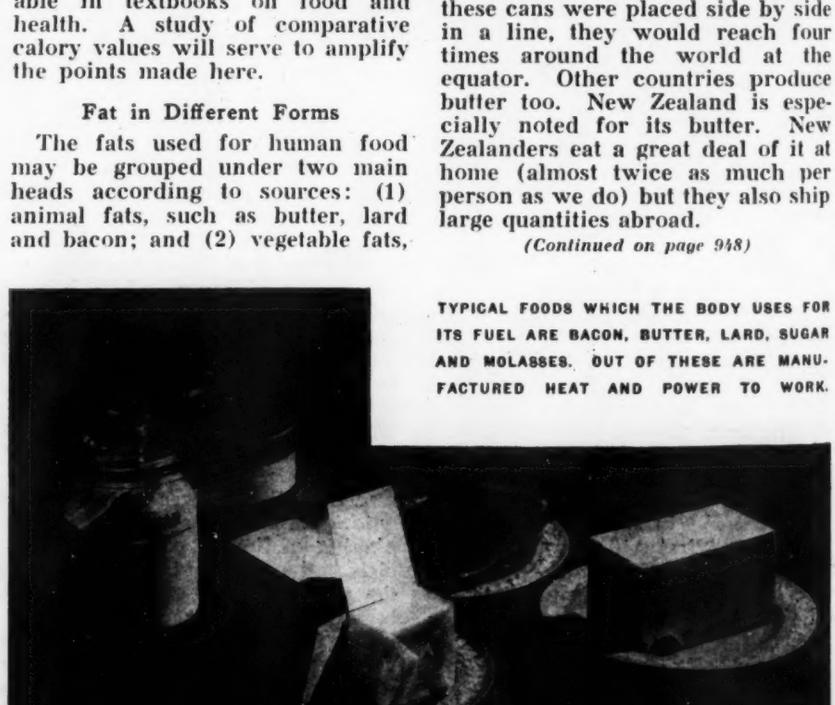
Fat in Different Forms

The fats used for human food may be grouped under two main heads according to sources: (1) animal fats, such as butter, lard and bacon; and (2) vegetable fats, such as the hard fats and oils used in cooking. In addition we have fats that we cannot see, combined in foods, as in egg yolk.

Of all the fats, we are probably most familiar with butter for it is one of the few fats that appear daily, as such, on the family table. Butter is made from the fat of milk, where it is present in the form of globules. Since these fat globules are lighter than the other ingredients in milk, they rise to the top as cream, if the milk is allowed to stand quietly for a time. Cream is removed from milk, commercially, by a special machine called a separator. Cream still contains some of the milk. When it is churned to make butter, the fat globules cling together more closely, thus making a more nearly solid mass and leaving a liquid called buttermilk. Fat, therefore, is in more concentrated form in butter than in cream or milk.

Most of our butter comes from dairy states, and certain parts of our country are especially noted for producing butter. About 48 billion quarts of milk were produced in this country in 1937. Of this amount nearly one-half was used to make butter. Ten and one-half quarts of milk are required to make one pound of butter. The extent of butter production in the United States may be visualized from the statement that if all the milk in this country which is made into butter were placed in ten-gallon cans, and these cans were placed side by side in a line, they would reach four times around the world at the equator. Other countries produce butter too. New Zealand is especially noted for its butter. New Zealanders eat a great deal of it at home (almost twice as much per person as we do) but they also ship large quantities abroad.

(Continued on page 948)



TYPICAL FOODS WHICH THE BODY USES FOR ITS FUEL ARE BACON, BUTTER, LARD, SUGAR AND MOLASSES. OUT OF THESE ARE MANUFACTURED HEAT AND POWER TO WORK.

The Neurotic Personality of Our Time

By Karen Horney, M.D. Cloth. Price, $3. Pp. 299. New York: W. W. Norton & Co., Inc., 1937.

THE author is a psychoanalyst who has diluted her psychology with sociologic clichés to a degree that one must place her less as a Freudian and more as an Adlerian. She attacks the problem of the neuroses from the standpoint that specific cultural qualities are necessary for their development. Competition and the quest for power loom large in her terminology. The book has been written for the lay person who will be misled by the author's indignant words regarding the onesidedness of psychoanalysis. No Freudian represents the point of view which she makes her psychoanalytic straw man express. The human being is a biosociologic unit and cannot be understood psychologically without studying the person both with his instincts and with his environment. Psychoanalysts are equally as aware as the author that culture is important in the development of neuroses, but that does not prevent her from postulating their ignorance as an excuse for writing a book for lay consumption profitable only to herself.

ROY R. GRINKER, M.D.

Black Box Studios

"A TALK TO THOSE ABOUT TO WED" IS OFFERED IN REVIEW FOR COUPLES PLANNING MARRIAGE.

NEW BOOKS on HEALTH

Character and Personality of Children from Broken Homes

By Nehemiah Wallenstein, Ph.D. Price, $1.60. Pp. 86. New York: Bureau of Publications, Teachers College, Columbia University, 1937.

THIS is a study to determine whether it is true that children from broken homes are different in certain aspects of character and personality from children of normal homes. More than 3,000 boys and girls were examined in regard to the status of their homes. Batteries of tests were given to about 1,600 boys and girls from normal homes and to more than 400 from broken homes. The results of the study showed that 17 per cent of the broken-home children were found among the public school population. The highest incidence was found for the Negro group, amounting to more than one half of the total population in school. In the white group the highest incidence was among the Slavic children.

The most common type of broken home was that in which the father had been lost through death.

In general the children from broken homes were inferior in all points tested, although in some cases they seem to have been spurred to greater achievement by their inferiority. The author concludes that children from broken homes and from normal homes cannot be divided into two groups. The term "broken home" should be viewed primarily as a sociologic rather than a psychologic concept. The investigator did not attempt to decide whether the inferiority in character and personality found for broken-home children as compared with normal-home children was due to the immediate disintegration of the home or to hereditary disposition.

J. MACE ANDRESS.

Man, Bread and Destiny

By C. C. Furnas and S. V. Furnas. Price, $3. Pp. 364. Baltimore: Williams & Wilkins Company, 1937.

THIS fascinating book on the history of diet has none of the dryness usually associated with history, for it is a swift-flowing narrative on perhaps the most important subject in the world—the part that food has played in the development of the human race and its place in our daily life. The authors write with infectious enthusiasm. This book should be in every reference library for the use of high school and college students. Teachers in the grades will find in it excellent true stories which can profitably be injected into lessons.

J. M. A.

A Talk to Those About to Wed

By Addison W. Baird, M.D. Paper. Price, 10 cents. Pp. 16. New York: The Addison Press, 1937.

THIS is a simple, unpretentious, straightforward and essentially correct presentation of considerations which may well occupy the mind of the young man and woman contemplating marriage. While the author deals briefly with other matters, the pamphlet is intended mainly to set forth the facts about sex. Without the gift of facile expression, the author nevertheless creates the desired impression and gives the necessary facts in plain and entirely unobjectionable language. This should be a useful pamphlet for those who have not much money to spend but who desire information on which they can rely. Perhaps the least satisfactory portion of the pamphlet is that relating to contraception; parts of this discussion may lead women readers to place too much reliance in methods which are known to be fallible. The exposition of the so-called "rhythm" method is too sketchy to be serviceable, even in a pamphlet of this size and type.

W. W. BAUER, M.D.

(Continued on page 950)

A BULL'S-EYE FOR HEALTH

(Continued from page 877)

and arrow hunting when the Pilgrims landed. For years these early white men used the Indian method of hunting because the bow was so deadly and so economical. The equipment that the Indians used, incidentally, was much inferior to that which is produced today, both in shooting power and in accuracy. The Indians were master arrow makers; but their bows, with a few exceptions among scattered tribes, were usually pretty bad.

We found, too, that thousands of persons in archery clubs all over America are making their own equipment and enjoying this pleasant outdoor sport the year round. We found that archery is included in the courses of physical education in many of the leading universities the country over. Yearly the sport attracts thousands of persons to local and national tournaments of the bow.

We found out about the best bow woods. Yew from Oregon is the finest native wood; then comes tough Osage orange and then lemonwood from Cuba.

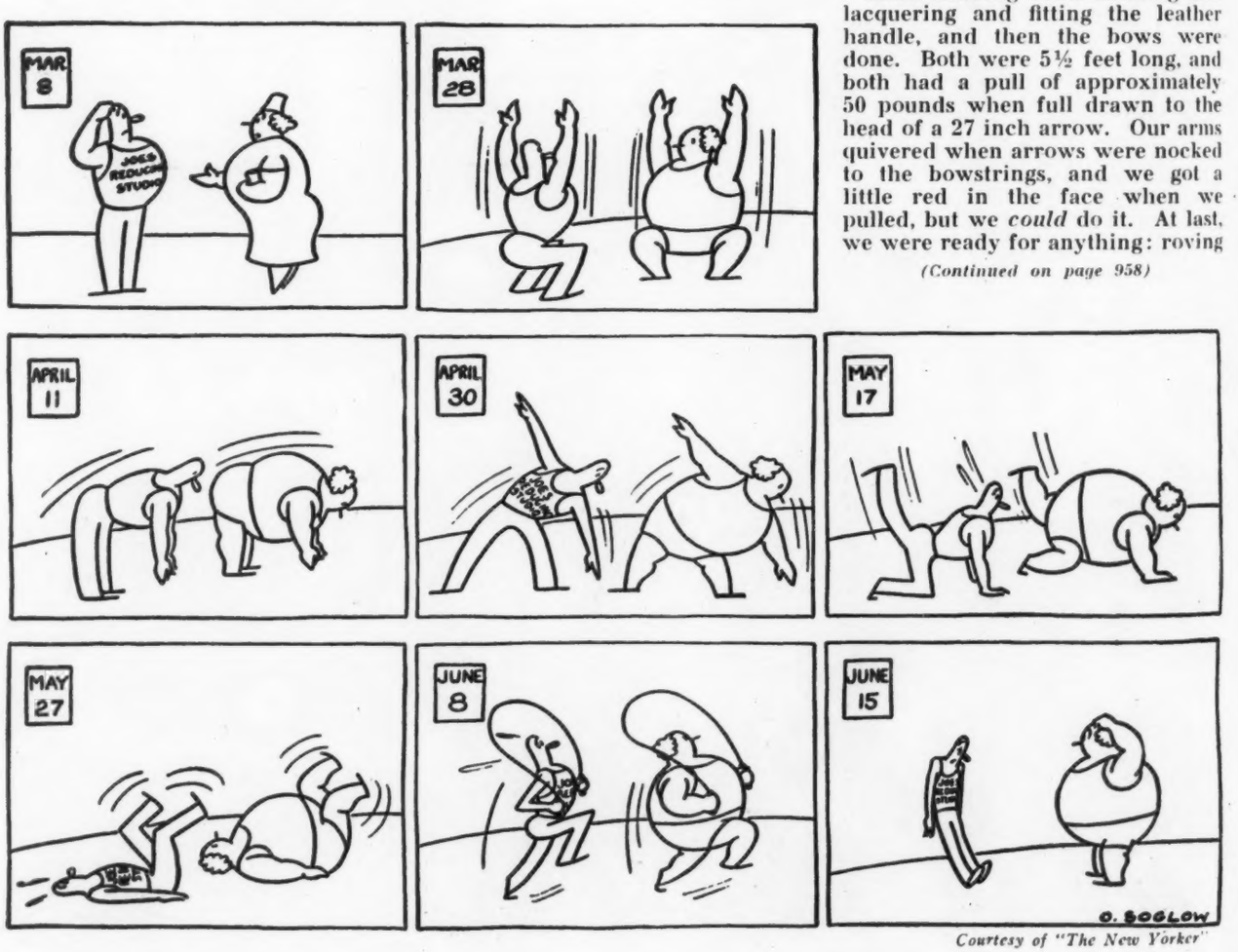
We even found a shop, hidden away in a corner of the city, where bows were made. The air was full of the noise of a rip-saw and the smell of lemonwood and yew. We bought two lemonwood staves, that being the easiest wood for a beginner to work, and went our separate ways, anxiously hoping that we could make bows like the ones we had seen in the Forest Preserve on that first day.

We made them, all right; no Indian had anything on us. Our bows were tenderly scraped and shaved to the correct shapes. Our workshops were the floors of kitchenettes in widely separated parts of the city. We completed the bows during odd hours of one week, including mealtimes. That was no disadvantage but rather an encouragement, for the attitude of both wives was the same. "Believe me," ran their comments, "I'll certainly be glad when you get that thing out from under my feet." A time was to come, however, when they would be singing quite a different tune.

It took a little planing, a lot of scraping and a lot of tillering before these staves had been nursed into the graceful, beautifully balanced arcs we had meant them to be. The tiller, incidentally, is not the same gadget that boats are steered with, as you sailors are likely to think. The tiller, in archery talk, is a board about 1 yard long and 4 or 5 inches wide. At the top is a large notch into which the handle of the bow fits. Down the side for a distance of 27 inches are a number of small notches to hold the bowstring. When the stave has been planed into the rough shape of a bow, the string is fitted into the nocks of the bow, and the bow is put on the tiller. The string is then pulled back to the first notch along the side of the tiller so that the bowyer (you get to be called that if you can make a bow) can stand off and see how the limbs of the bow are bending. Tillering, in case you have to do much of it, is great exercise. Pulling the bowstring down to a notch that seems pretty hard to reach has playing with weight machines beat hollow.

After tillering came sanding and lacquering and fitting the leather handle, and then the bows were done. Both were 5½ feet long, and both had a pull of approximately 50 pounds when full drawn to the head of a 27 inch arrow. Our arms quivered when arrows were nocked to the bowstrings, and we got a little red in the face when we pulled, but we *could* do it. At last, we were ready for anything: roving

(Continued on page 958)



Courtesy of "The New Yorker"

OUTWITTING HOMEMAKER'S FATIGUE

(Continued from page 889)

Sink too low.

will permit you to work without stooping or stretching. Try out several heights before deciding which is best, and you will discover that it takes different heights for the various tasks. Already women are complaining about the one height being used in the new kitchens. When you are rolling pastry or dough your arms are at full length, while in cutting, your arms are bent. It requires a lower surface for the first operation than for the second. If the sink is to save you from bending, the bottom of it should be even with the working table height instead of a depth below.

Since it is difficult to have these various heights, and most of you have to make the best of what you have, you compromise and use averages of from 32 to 36 inches from the floor, depending on your height. Casters, furniture rests, blocks or platforms can be used to increase the heights of all the surfaces mentioned except the sink. A deep block or several pieces of thick wood can be fastened together and a dishpan set on this to get the right height for washing dishes. Remember to try the height by sitting down to this task. If you don't have a kitchen stool, the baby's discarded high chair with the arms removed or a child's high chair makes a comfortable one. If surfaces are too high for working comfort, have a block 15 inches wide and 20 inches long made of the right thickness to stand on. Attach a handle at one end so the block can be picked up easily and set aside when not in use.

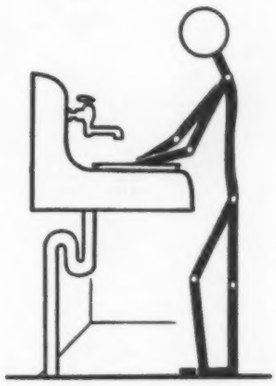
The chassis of a discarded baby carriage with a platform on top makes a good cart to set your clothes basket on when hanging clothes on the line, so you won't have to bend. Have a sliding clothes-pin bag to hang on the line as you work. The top of the cart should be about 33 inches from the ground for the average woman or high enough so you won't have to bend when reaching into the basket for clothes.

Ironing boards come in adjustable heights of 30, 32 and 34 inches from the floor. Mops, vacuum cleaners and brooms should have handles long enough so you can stand up straight when using them. Try them out when buying. Place your equipment in the kitchen at the place where you are going to use it. Group your refrigerator, food preparation cupboard, work table and mixing equipment together if possible. Then group the sink, dish cupboard, range and serving dishes near each other. One homemaker eliminated 152 steps and saved seventeen minutes in the preparation, serving and cleaning up of one meal by having her large equipment compactly arranged. By improving her kitchen another homemaker took 131 steps and consumed two hours in accomplishing the same work which had required 1,516 steps and three and three-fourths hours in her unimproved kitchen. That is outwitting fatigue to the *n*th degree.

Learn to use your muscles correctly. Eliminating bending over at the range and at working surfaces will help you to use the arm muscles and not the shoulder ones. If you are carrying a market basket, have the handle near your elbow; learn to use the thigh muscles when carrying the laundry basket. When you stoop to dust or to get products out of the refrigerator or oven or to pick up articles, squat or bend the knees, and you will save much fatigue. If you put your feet close together and near the article you are going to pick up, it is much easier.

Kitchen equipment plays its part in fraying nerves and causing fatigue. Maybe the knife handle is so short that the end of it cuts into your hand; the mixing spoon has flat edges which hurt when you stir up the cake; the flour sifter won't go around, and the rolling pin has only one handle—all of which seem minor considerations but make for much fatigue in daily tasks.

Adopt a good philosophy of living, and you will have little emotional fatigue to overcome. Emotional fatigue alters the glandular activities of the body and makes it difficult to relax and to restore well-being by sleep. Emotional fatigues set up by other persons have their effect on you; such factors may include a nagging voice or an irritating or boring personality. There is the person who talks incessantly, who interrupts, is oversolicitous about others, who finds fault or who is overenthusiastic about subjects in which you have no interest. Nervous and fidgety persons come in this class also. Check yourself, and if you have disagreeable character traits, you will find your own happiness and that of your associates increased if you remove or modify these traits. You will find yourself not so readily fatigued and in much better health.



Correct height.

Perhaps you become fatigued easily or are always tired because of not being at peace with yourself. Maybe you are one of the worriers and have let worry master your mind, instead of being yourself the master. When you really analyze it, isn't it true that most of the worries never materialize? Or have you tried to do something about them? Did you build a play yard so Johnny wouldn't play in the street, or did you cover the old well so he wouldn't fall in? Do something about the problem; then find new interests, and forget the worries.

Among the leading candidates for first place in the fatigue race is Mrs. Hurry who just wears herself out and can't accomplish a thing. Take things in your natural stride and rest periodically, and you'll accomplish more. Her neighbors, Mrs. Wrong Attitude and Mrs. Monotony, are almost hopeless. If you don't like homemaking and have to do it, put a new interest into it. Plant that row of sweet peas along the back fence, learn to sing, learn verses, take long walks and get acquainted with your young son. Forget about some of the household jobs, or take time away from them. Get a new slant on life: You can't always do the thing you want to do when the notion

(Continued on page 947)

TO AMERICA'S SCHOOLS *Your Health!*

BROADCASTS IN BRIEF

1938

Personal Health

1. What is Health?
   Introductory; explanatory.
2. Growing Strong
   Favorable and unfavorable factors in growth and the maintenance of normal weight.
3. Seeing and Hearing Well
   Hearing and vision; how to conserve these; how to recognize deviations; how to prevent loss.
4. Healthier Boys and Girls
   So-called physical defects; their recognition; what can be done about them.

How to Live

5. Healthful Play
   Health values and hazards in sports and recreation, including football.
6. Weather and Wearing Apparel
   Ventilation; clothes; baths.
7. Rest, Relaxation and Recreation
   All work and no play, or all play and no rest—bad for health.
8. Tuberculosis and the Teens
   How bad habits of hygiene and unwise living, plus infection, favor tuberculosis.

Let's Eat!

9. What Shall We Eat?
   A well rounded diet and how to get it.
10. Hidden Treasures in Foods
    More about a balanced diet in special relation to minerals and vitamins.
11. Good Milk, Good for You
    The production, transportation, pasteurization and home care of milk; its place in the diet; processed milks.

1939

Dodging Contagious Diseases

12. Fool's Gold
    Facts vs. fallacies in relation to false notions on diet.
13. Only a Cold!
    Cause, spread, prevention of colds, pneumonia and influenza; importance of early medical care.
14. Scarlet Fever, Measles and Whooping Cough
    Modern attitudes toward these diseases; prevention by community cooperation.
15. Smallpox and Diphtheria
    Unnecessary diseases; preventable by immunization of infants.
16. Preventing Epidemics
    Reporting of cases, quarantine and other control measures.

Health for Tomorrow

17. Avoiding Arthritis
    Known factors in the causation of arthritis; its care.
18. Healthy Hearts
    Known ways of protecting the heart against infection and hygienic abuse; how to live with heart disease.
19. Cancer Can Be Cured
    Known factors in the cause, prevention and treatment of cancer.
20. Diabetes
    Individual efforts plus medical aid win against diabetes.

Community Health

21. Water, Waste and Sanitation
    Importance of community control of water supplies, sewage disposal and general sanitary matters.
22. Guarding Fresh Foods
    What the community can and must do to protect fresh foods, such as fish, fruits, vegetables, meats, bakery goods.
23. Auditing the Health Record
    The meaning and the importance of vital statistics, contagious disease reporting and community health records.
24. Animal Diseases Transmitted to Man
    Rabbit fever, rabies, undulant fever and similar infections, and what can be done about them.

Health Education

25. Don't Believe Everything!
    Fallacies and popular beliefs that are not true and that influence behavior in a manner detrimental to health.
26. Learning to Live
    Elements of mental hygiene; getting along with people; adjustment to environment.
27. "Accidents Don't Just Happen—"
    Accidents in the home and on the highway and ways to avoid them.
28. What Is a Doctor?
    The characteristics of a reputable physician as distinguished from cultists, quacks, fakers, faddists or exploiters.

Mothers and Children

29. Healthier Babies
    Daily routine of the healthy baby; medical supervision; feeding.
30. Healthier Mothers
    General advice for the expectant mother; good for girls and boys to know about.
31. The Doctor's Workshop
    The place of the hospital in the health program of individual and community.
32. Toddlers, 1939
    The preschool child and the health and personality problems of that age.

Using Health Knowledge

33. Checking Up on Health
    Periodic health examination and what follows, and why.
34. Vacations—Why and How
    Making the vacation a real contribution to health and recreation.
35. Never Stop Learning
    A new phase of life begins at commencement, and health contributes to success.
36. Answering Your Questions
    What kind of health questions can be answered and what kind can't without seeing the patient.

THE TOPICS for the radio program "Your Health" for 1938-1939 are listed on the opposite page. The first program will go on the air Wednesday, Oct. 19, 1938, at 2 p. m., eastern standard time (1 p. m. central time, 12 noon, mountain time and 11 a. m. Pacific time), over the Blue network of the National Broadcasting Company. It will continue each Wednesday at the same hour for thirty-six weeks.

The broadcasts, while on the same general subjects as last year's programs, will be entirely new, from new scripts to be written a week or so before each program goes on the air. Briefs covering the subject matter of the broadcasts will be found under the similar titles in HYGEIA for October 1937 through June 1938, with one or two exceptions where new topics have been substituted. In these instances, new briefs will appear in HYGEIA, in the issue corresponding to the month in which the broadcast is scheduled.

Keystone View

WHAT MAKES BOYS AND GIRLS HEALTHY AND HOW TO CORRECT THEIR PHYSICAL DEFECTS ARE DISCUSSED IN THE FOURTH PROGRAM OF THE NEW SERIES OF RADIO BROADCASTS.

H. Armstrong Roberts

WOULD VEGETABLE SHORTENING OILS OR MUTTON GREASE BE AS GOOD AS COLD CREAM FOR USE ON FACE AND HANDS?

QUESTIONS and ANSWERS

Use of Silver Protein Solution in the Eyes

To the Editor:—Would the use of 2 drops of a 10 per cent silver protein compound solution in each eye, once a week for eight months, discolor the cornea or the iris or both? And if the procedure did discolor the cornea or the iris, would it be permanent, or would one's own system in time restore the natural color? Are the red threadlike lines that appear in the cornea injured blood vessels, and do they in time mend and disappear? I have had them for several months and have had my eyes examined, but the examination did not indicate eyestrain or the necessity of glasses.

I. L., Illinois.

Answer.—It seems unlikely that the use of such a solution only once a week would cause a discoloration in the eye, but if it were used much more often over such a long period of time, it would certainly cause a permanent discoloration of the white portion of the eye. This is due to the deposition of metallic silver, and nothing can be done to remove it. The solution should never be used longer than three weeks at a time and prepared fresh.

Threadlike lines on the white of the eye are just the normal small blood vessels supplying this part of the eye. They are normally much more prominent in some eyes than in others. They do not indicate that anything is wrong and do not require any treatment.

Vegetable Oils and Cold Cream

To the Editor:—Would vegetable shortening oils or mutton grease be as good as cold cream for use on the face and hands? With lamb or mutton grease, would it be well to mix a few drops of carbolic acid to make it smoother?

G. D., New York.

Answer.—The materials mentioned might be as effective as cold cream for use on the face and hands under certain conditions. Good results have been had by some persons who have used vegetable shortening oils in place of cold cream; but in a person who happens to be sensitive to cottonseed oil or maize oil, irritation can result from their use. Likewise, occasionally an individual whose skin is wool-sensitive may react unfavorably to the use of mutton tallow when applied externally. The addition of carbolic acid would not make the preparation smoother but would have a certain amount of value in controlling itching, although its prolonged use might lead to chemical irritation of the skin.

Pigmentation of Negroes

To the Editor:—I have read that since pigment granules do not appear until after birth, even Negroes are born white. Is this true?

J. V. M., New York.

Answer.—Granules, which appear to be melanin granules, are present in the skins of white and Negro fetuses after the fifth month of fetal life. They are more abundant in Negroes. They do not become dark until about the time of birth or sometimes later. About 10 per cent of Negro babies do not show any darker color than white babies at birth. Ninety per cent of them are darker than white babies. All of them become darker during the first day after birth and rapidly darker during the first few weeks, first around the nails and the nipples, then around the genitals.

The pigment appears first as granules of proteid composition. This is light in color. It combines, however, with a ferment carried by the blood, which appears about the time of birth. The combination results in melanin, the brown pigment which gives the characteristic color to the skin of brunettes and Negroes. The melanin granules are much more abundant in the skin of Negroes, and they become individually darker.

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PARASITE TRICKS (Continued from page 906)

as black fever, black measles, spotted fever or tick fever, and in certain localities this disease had a high mortality. At first it seemed limited to a narrow area, mostly in Montana and Idaho, and carried the name of Rocky Mountain spotted fever, on account of a rash that almost invariably accompanied it. This was somewhat confusing, as typhus was also called spotted fever; moreover typhoid has a rash that is not unlike these two. But with further study of the disease this did not seem so strange.

After the studies on cattle fever had demonstrated the undoubted connection of it with ticks, Dr. Howard Ricketts started study on Rocky Mountain spotted fever, and his first studies seemed always to connect the disease with the history of tick bites. An organism was observed in the blood in spotted fever cases that resembled that of cattle fever, but later this was found not to be the active causative agent. Ticks had been suspected as transmitting agents for some time, and in 1905 experimental transmission of the disease by tick bite had actually been accomplished. One of the first things that Ricketts did when he started the study in 1906 was to demonstrate that the disease could be transmitted to guinea pigs. This was a big help. Experiments were continued until most of the facts already mentioned were known. It was found that both male and female ticks transmit the disease and that one attack usually confers a high degree of immunity. He found that one particular tick was responsible for most infections, but that other ticks may also pass it on. The tick most blamed is called Dermacentor andersoni. In any stage of development this tick may carry infection. It has been of great importance to discover that the infective agent of the disease may in some instances be transmitted to the eggs and through the eggs to the young. It seems to be bad enough to have the adults capable of transmitting the disease; and when only the female transmits it, it is less serious. But to find that the whole family, especially when the children number thousands, can pass it on, perhaps indefinitely, makes the problem enormously complicated. Disease has been experimentally transmitted to the third generation of ticks, and no one yet knows but that it may go on indefinitely.

Spotted fever is astonishingly like typhus fever in its onset and symptoms. The causative organism is almost the same, or so nearly alike that it has the same family name, Rickettsia rickettsi, while typhus is Rickettsia prowazeki. The start is with fever, often accompanied by a chill, pain in the bones and muscles, severe headache and a rash. It is so much like typhus that they might easily be confused on the symptoms alone, and they run about the same course. After about ten days the patient begins to get better if he is to recover. Otherwise the symptoms become more severe, and death follows, sometimes very quickly after the beginning of the disease. In the Bitter Root Valley of Montana a mortality of 70 per cent was formerly not uncommon, and it was not expected that any one over 60 who was infected would recover. In other localities the death rate was much less, but the disease is always a serious one.

Early in the study of Rocky Mountain spotted fever it was thought to be limited quite closely to the Rocky Mountain regions. But as more knowledge and experiment with it became available, it was found in practically all the western states and in many of the middle and eastern ones. While closely allied with typhus, it is not the same disease but may readily occur where typhus is present.

Fortunately we now have a vaccine that is quite successful in protecting those who must be exposed frequently to tick bites.

We do not often think of ticks as inhabitants of high lands, yet there is one that prefers the high altitudes, from 5,000 to 8,000 feet, particularly in California. This tick transfers relapsing fever and is quite a problem around some fine summer resort homes in the mountains. Its technical name is Ornithodorus hermsi.

On account of the tick's ability to live months or even years without food, the problem becomes a serious one to the nature lover, hunter, fisherman and naturalist. Many of the favorite summer haunts of people are closed much of the year. Most of the dwellings in such localities are of the cabin type, quickly and roughly built and not at all proof against the entrance of mountain rodents.

Among the reservoirs of relapsing fever are the chickaree (the American red squirrel) and the chipmunk. The former seems to delight in making nests in the cabins and the latter under them. This makes it practically certain that such cabins will be tick infested. Such ticks often feed quickly on the squirrels, then drop off and remain most of the time in the nests. But if the squirrel fails to return, the ticks are left without a source of food and usually start out exploring. So they will wander to all parts of the cabins, and the first visitors are almost certain to be bitten by the hungry ticks.

It is never safe to assume that an uninhabited cabin is uninfested with vermin, for both ticks and fleas may remain alive for a long time without food, and this is particularly true of ticks. It is much safer to sleep in the open than to occupy an unknown cabin. Even those that are occupied by the same family year after year are frequently infested when opened for the summer; and if the cabin is not promptly cleared of vermin the inhabitants are likely to be infected with relapsing fever, as many in the past have been. All ticks must be regarded as infected. Some may escape, but the probabilities are so great through direct infection and heredity that it is never safe to assume that ticks' bites are harmless. It is much better to avoid them to the greatest extent possible, as all are potentially dangerous.

The control of ticks is an important problem and one that has received much study. We have seen how cattle ticks are controlled on a large scale. Clearing the land and using it for agriculture results in the destruction of many ticks, largely through their inability to get food. If young ticks do not attach themselves to hosts in a few days, many die. Others may linger for a time, but not many survive a month in nature. Sheep grazing over land keeps the grass so short that young ticks have a much smaller chance of attaching to rodents. Hand picking of the ticks from dairy cattle, horses and sheep is sometimes necessary to reduce the chances of animal destruction. The tick that causes Rocky Mountain spotted fever will cause paralysis in sheep and sometimes in children, if it bites on the neck. Usually if such ticks are promptly removed the child or animal recovers rapidly.

Fields where there is no danger from forest or prairie fires may be burned over to good advantage.

Summer cabins should be designed and built with the idea of excluding rodents and thus avoiding the probability of tick infestation. But if such cabins are infested, they should be fumigated if possible. Sulfur is effective when properly applied. If fumigation cannot be done, liberal use of crude oil, kerosene or creosote will do much to control any insects that may be present. Such methods must be used repeatedly.

When camping, a search should be made frequently to see whether

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"TELL IT TO ROGERS"

(Continued from page 874)

The enlisted man in trouble calls on the field director. This is just between the two of them, and the man talks—a relief in itself. Then, before the field director gives advice he very sensibly gets both sides of the picture by having the nearest Red Cross chapter check up on the home condition. He may find through the chapter that the boy is badly needed at home. Should the field director suggest a dependency discharge, then? That depends. Are the chances of the man getting permanent work in his community good? Here, again, the chapter comes into the picture. And so it goes, an exacting business calling for heart as well as brain.

Take the case of Charles, third class mate, USN, U.S.S. *Raleigh,* whose wife deserted their 18 month old baby while Charles was stationed in European waters. The sailor's mother had excitedly reported that the man's wife had left the home, locking the baby in the apartment. The case was referred to the Red Cross chapter, and it was found, on personal investigation, that the mother's mental condition was such that it would not be advisable for her to care for the infant. The Red Cross arranged immediate hospitalization at a state institution for the mother, then got in touch with the Society for the Prevention of Cruelty to Children and saw to it that a good home was found for the baby.

Because the Red Cross felt that the bluejacket should know existing conditions a radio message was dispatched to the *Raleigh.* Several radiograms were exchanged between Rogers and the ship, resulting in the selling of the furniture for the man and a $30 monthly allotment being registered for the support of the child.

Thus the Red Cross guides the feet of the men who shoulder arms.

"What do you think of this job of yours?" I asked Rogers, knowing but wanting to hear his philosophy at first hand. "What about this business of playing Uncle to the Navy?" I asked.

Rogers' patient face lighted up; his expression was at the same time touchingly sweet and grimly sour. "For twenty years," he said slowly, "I've listened to what, at the time, constituted the most important crises in the lives of young men serving in the Army, Navy, Marine Corps and Coast Guard. Their 'big trouble.' Frequently they had no one else to turn to. If their problems are not immediately ironed out their morale suffers, and they cannot do justice to their duty. I believe," he concluded simply, "that I have sometimes been able to help."

"Do you," I wondered aloud, "ever see these men again after helping them?"

"So often they come back to see me when their ship comes in—just to say 'hello' or to ask me out to meet the wife and baby. I—well—"

He paused a moment, then went on reflectively, "You know, youngsters I have known as babies are now ready to enlist, and it won't be long until they are telling me the same 'big trouble' that their dads told me. And I will be giving them the same advice I gave their dads. It's a funny world!"

I thought to myself that it would be a lot funnier without men like Rogers in it and asked him to tell me a bit about himself, about his work. I found that he was a Princeton man, Phi Beta Kappa to boot, and that shortly after graduation he went into the export-import business.

"This necessitated considerable travel," he said. "I particularly remember one trip to the Far East which gave me a familiarity with that part of the world which still pays high dividends."

Rogers talked rapidly, sketching with vigorous strokes the highlights of his experience, leaving out whole sequences in his enthusiasm for a particular happening.

In 1919 he went to Siberia with a Red Cross relief unit which distributed supplies and built morale. He was stationed at Skotova, 150 miles inland and north of Vladivostok. He chuckled, recalling the modest home he had built out of Red Cross packing cases for a destitute famliy. I chuckled too, thinking of the use political cartoonists had made of the catch-phrase "packing case." Here was a definition of the thing that could outdistance years, political régime and the aspirations of men.

Rogers remained at Skotova a year, then went to the Philippines to start Red Cross work for enlisted men at Manila. When he left Siberia it was 20 degrees below zero. When he arrived at Manila six days later, it was 120 in the shade. Blow hot—blow cold, it's all the same to Rogers.

In those days this type of Red Cross work was called military relief work. Rogers covered all the Army and Navy posts there, concentrating on the big ones like McKinley, the Navy base across the bay at Cavite and the fortified Army base at Corregidor.

He stayed at Manila for five years. He was breaking new ground, and the job was a hard one. So many strange problems stalked about, cupping their ear toward the Red Cross for advice. Rogers' job had more than a veneer of variety. A soldier's or sailor's family problems are more diversified, in a way, than those of a young man in civilian life; and they are apt to prove more disquieting, since the enlisted man is unable to "talk things out" with the members of his family. This is why Rogers' work is so important. He and one of the 3,700 Red Cross chapters are mouth and ears for the gob in trouble; they are his personal emissaries.

Henry Rogers came to the New York Navy Yard in January 1925 and has been there ever since. He lives on the U.S.S. *Seattle,* the receiving ship where are assembled, maintained and sometimes trained the crews of cruisers and line ships under construction pending their commissioning.

Our interview ended, I reluctantly rose to leave his snug cabin. As he said goodby, his eyes had that faraway, troubled look that told me he was again grappling with one of his big boys' difficulties. "Chaplain Leonard told me of a new 'big trouble' one of the men has," he said apologetically. "It's kind of got me worried, I—" I left him standing there very erect, eager and looking somehow like a leatherneck going over the top.

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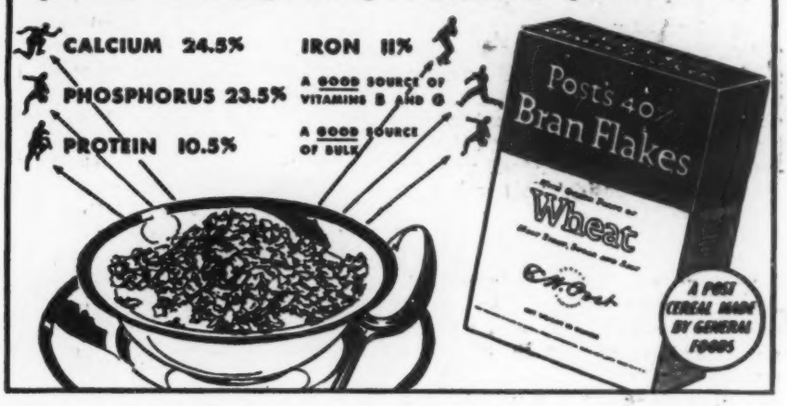

Autumn Snapshot . . . . .

Just look at yourself, Madam! If you don't look quaint. Shades of the past and Aunt Mathilda's Sunday bonnet! Fashion's pendulum swings back, but with a new rhythm that gives an exciting modern interpretation to bygone glamour... Woman's beauty does not change. Our appreciation of it may vary with the mood of our particular generation. Like a star, it may at times seem to twinkle a little brighter. But whether it be grandfather raving about the Gibson girl or young Henry raving about the Petty girl, the source of inspiration is essentially the same. The beauty of woman is ageless.

Regardless of the fashion, you are you! Rejoice in being yourself at your best, your daintiest and loveliest. Good sense and fine cosmetics will help you to achieve this happy estate. . . .

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Uterine cancer is rarely accompanied by pain in the beginning. By the time definite symptoms appear, the cancer may be well established and, generally speaking, may progress from an early curable stage to a seriously advanced state within three to six months.

How can a woman know when a cancer has started? At the first sign of anything unusual, she should see her doctor *immediately.* And that means not next week or next month, but *at once.*

Every woman, married or single, especially past the age of 35, should have a physical examination if or when she observes *any* abnormality. Every mother should have a thorough examination by her doctor three months after the birth of each of her children to make sure that complete healing has taken place.

Many women suffer daily mental torture fearing needlessly that they have cancer. But, on the other hand, it has been shown that more than 40 per cent of the fatal cases of uterine cancer had been neglected despite obvious physical warnings. The woman whose life may be saved by prompt action owes it to herself to find out the truth. And so does the woman who is worrying needlessly.

The discovery of precancerous conditions during the symptomless, "silent" period would save thousands of lives. *Time* is the determining factor. The Metropolitan booklet "Cancer" gives useful information about the various forms of this disease. For a free copy address Booklet Department 1038-Z.

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BODILY CHANGES IN ADOLESCENCE

(Continued from page 929)

PARENT: What is the relationship between the adolescent spurt and attainment of puberty or sexual maturity? That is, does the adolescent spurt occur before puberty, after puberty or at the same time as puberty?

CONSULTANT: The available research indicates that the adolescent spurt occurs *before* the attainment of sexual maturity. Professor Boaz reported a study of this relationship in 1933. His study was based on records for a group of New York school girls examined frequently over the period from ages 8 to 17 years. He found that the average age when girls reach the crest of the adolescent acceleration is 12 years; while the average age of the menarche, or first menstruation, is 13¼ years. There are other studies in close agreement. It may thus be concluded that, on the average, the adolescent spurt occurs more than a year before puberty.

PARENT: I presume that puberty, like the adolescent spurt, occurs in different individuals at widely different ages.

CONSULTANT: Yes, just as a girl may reach the peak of her adolescent spurt at any age between 9 and 14 years, so first menstruation may occur as early as 11 years of age or as late as 16 years. Likewise, for boys, the growth spurt and puberty may each occur at any age over a five year period.

PARENT: What should be the attitude of parents toward the bodily changes that occur at adolescence? What can they expect, and what attitude should they and the adolescent take?

CONSULTANT: Parents should have much the same attitude toward bodily changes at adolescence as they do toward bodily changes at other ages. They consider it neither mysterious nor unfortunate that the infant increases rapidly in size, develops a thick growth of hair on his head and begins to erupt teeth. Rather, they become informed about these changes and accept them as normal aspects of infant growth. Likewise, they should become informed about the bodily changes that occur at adolescence and be prepared to accept these as normal aspects of growing out of childhood into adulthood. Either at an early age, an intermediate age or a late age, every healthy boy and girl develops a heavy growth of hair in the armpits and over the pubic region. The girl also shows development of the breasts and reaches the menarche;

while the boy undergoes a "change of voice" and finds the need to begin shaving his upper lip. These bodily changes should not be dreaded on the one hand or over-anxiously awaited on the other. They are phases of the natural process of physical growth and should be taken in stride.

"Good health and good sense are two of life's greatest blessings." That statement was uttered in 42 B. C. and has held true ever since. Today's children, growing into tomorrow's adults, will find life infinitely better if they can meet it with healthy minds and bodies. To today's adults belongs the privilege of preparation. The radio dramatization, "Healthier Boys and Girls" will throw further light on the subject. See the announcement on page 938 of this issue; and on Wednesday, November 9, tune in for the program broadcast by the American Medical Association and the National Broadcasting Company.

PARASITE TRICKS

(Continued from page 941)

ticks have attached themselves to the person or to dogs. As a rule, dogs pick up many ticks but are not troubled by them more than the annoyance of the bites. Sleeping in hammocks instead of on bunks or on the ground will prevent many ticks from reaching the sleepers.

To remove ticks that have taken hold it should be remembered that the grip of this parasite is so firm that a rough removal will break off all or part of the head in the wound, and an infection is liable to follow. A tick cannot be "unscrewed" as one often hears. Only methods that will cause it to loosen its grip will make removal easy. Gasoline, kerosene, oil or petrolatum will usually serve. Chloroform is recommended by experienced campers. A simple and usually handy method is to allow a match to become charred and then touch the protruding end of the tick with the hot end of the match. This is usually effective promptly. It is well to apply iodine to the location of the bite to avoid subsequent infection. Should infection occur, prompt medical aid should be sought.

Tick tricks are dangerous tricks, and the less we have to do with ticks the safer we will be from the infections they so readily transmit.

[NOTE.—In the November issue, Dr. Skinner will discuss mites and spiders.]

THE IDEA THAT ONE BRIGHT LIGHT IS ENOUGH FOR READING

Actually eyes are most comfortable in diffused light, without violent contrasts. When you read or work under a glaring light, with semi-darkness all around you, your eye is not only bothered with glare from the working or reading surface, but must repeatedly adjust itself to light and darkness. In addition to sufficient light on your work, you also need additional general lighting in the room.

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THE WEIGH OF THE TRANSGRESSOR

(Continued from page 898)

Most unfortunately, therefore, when generally distributed fat remedies have any chance of producing results there is a good chance that they will also produce other things much more undesirable than fat.

Is there, then, no hope for the stylish stout who doesn't want to be one? Yes, there is.

First of all, she must make up her mind—however reluctantly and regretfully—that she can't bathe herself thin, nor rub nor roll nor chew herself thin (yes, there was once a fat reducing chewing gum!) nor safely drug herself into sylphlike proportions. It just can't be done!

Sylphlike or at least relatively sylphlike proportions can be achieved but not easily or even pleasantly at the start. For you must, at first, reduce your food intake to a level somewhat below your actual requirements—yes, you'll be hungry!—and you must by exercise of one kind or another use some of your excess fat in the production of energy.

Two other things must be realized: You must not lose weight too rapidly, or you will encounter trouble; and in order to do it safely, you must reduce under intelligent supervision. Just as there is no royal road to learning, so there is no easy way to slimness. And, finally, you must be persistent. Remember that weight can be put back again even faster than it was taken off. Once the goal has been reached, only will power and conscientious adherence to the measures that brought you there will keep you there.

Why the supervision? Why not a nice reducing diet?

Because, while any one can reduce to any degree by dieting and other more or less strenuous measures, not every one can be trusted to reduce wisely or safely. The important question of how much weight to take off and how rapidly it may be done are matters dependent on many factors other than the weight and the desire to diminish it. You are you, and the other fellow is some one else. What would be fine for him might not work for you, if it didn't turn out to be poison to you.

How much weight can safely be taken off; to what extent the diet should be restricted; what should be the nature of the exercise, and particularly, how fast reduction in weight may be carried on, to mention a few essential factors, are all purely individual problems and must be adjusted to suit the particular individual: who he is, what he is; how old; how strong; how much overweight. It is a highly intricate problem by and large and demands extremely careful and intelligent management.

There is much more to safe weight reduction than omitting white bread and desserts. It must be a strictly individual regimen adjusted to the individual problem, and it must be adhered to faithfully. If you cheat; if you become tired of it or perhaps discouraged because you do not seem to grow slim and graceful overnight; if you become disgusted and backslide—you'll know it when your bathroom scales tell the sad story of the weigh of the transgressor.

To the Too-Fats, the Too-Thins and the Just-Rights:

If you need more information on favorable and unfavorable factors in the maintenance of normal weight, tune in on Wednesday, October 26, to the program "Your Health." The American Medical Association and the National Broadcasting Company will present a dramatization on "Growing Strong." For further details, see page 938.

QUESTIONS and ANSWERS

(Continued from page 940)

Grafting Hair on Scalp

To the Editor:—Has any attempt ever been made to graft hair on the scalp? Is it at all possible or feasible?

A. F., Pennsylvania.

Answer.—Attempts to graft hair on bald scalps have been made in the past; but the results have not been such as to make the procedure a practical one as an aid to overcome baldness, in which it is assumed that the inquirer is primarily interested. Grafting in which single hairs have been transplanted has been attempted with indifferent success, and even though such grafts were uniformly successful the method would be too tedious

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If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

and expensive for practical purposes. The only other method of grafting which might be attempted would be the transplantation of large flaps of skin containing hair roots; but these necessarily must come from healthy scalp tissue from the same individual, and obviously such transplantation from one part of the scalp to another would not be of practical value.

OUTWITTING HOMEMAKER'S FATIGUE

(Continued from page 937)

strikes you; but most of the time you can, if you manage.

Are you annoyed at every little happening or noise? Do you speak crossly to your husband or children? Try the open air, get more sleep, have a physical check-up, but don't feel sorry for yourself! Develop a sense of humor, and use it, for there is nothing so bad but that it can be remedied. These emotional fatigues are not only harmful to you but most wearing on the family and may permanently affect your children's outlook on life. Adjust yourself to your task; have a goal; get enjoyment and a thrill out of living.

Life may seem dull and the whole world look dreary because you lack rest. Some persons require eight or ten hours of sleep; but the important factor is not how long one sleeps but how well. Rest brings vitality, good looks and a pleasing personality. If you are going to do something strenuous or go to a party, relax all you can during the day. Learn to work easily; don't tense your shoulders or make facial contortions. Have a good bed with a medium soft mattress and with light wool covers large enough to drape into the form of the body, so they won't need to be tucked in tightly. Have soft colors and lights in the bedroom; let the house become dull and quiet about 8 o'clock, and drowsiness will come of itself.

If you look well to your personal health, make household routine tasks easier and have a fine attitude toward living, you will be a competent manager of this ménage, have exuberant health and outwit excessive fatigue.

[NOTE.—Charts used in this article have been translated and adapted by the Division of Cooperative Extension, U. S. Department of Agriculture, from drawings by the Reichskuratorium für Wirtschaftlichkeit, Berlin, Germany.]

The vocation of every man and woman is to serve other people.

—Walt Whitman.

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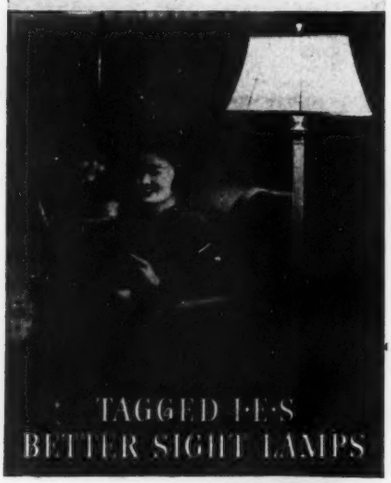

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SCHOOL AND HEALTH

(Continued from page 934)

Fats Important in Diet

Fats make important contributions to the diet. They add flavor to meals, are satisfying and add calories in concentrated form. A small amount of fat on meat, for example, gives it a flavor not obtained from meat which is entirely lean. Butter on bread and foods cooked with butter are traditionally appetizing.

Fats travel through the digestive tract at a slower pace than other foodstuffs. They thus help to keep one from getting too hungry between meals. Fats also can be depended on to bring the total calory need up to requirement without increasing the amount of food beyond that which can be eaten conveniently. People in cold climates, notably the Eskimoes, eat large amounts of fats. This is due in part to the fact that fat is abundant in a limited food supply but also because they need foods high in caloric value to keep them warm in their severely cold climate.

Application to the Classroom

Children will enjoy learning how to test for fats and learning which of the common foods that they eat every day have the fat hidden so they cannot see it. Pupils in the intermediate grades will particularly enjoy the first experiment which follows. In the lower grades, butter making is often a classroom activity. As a cooperative venture it might be arranged that the butter made by the younger children should be tested by students of the intermediate grade and that a representative of the latter group should demonstrate the test, later, to the younger children.

Experiment with Fat (1)

Problem

To test for fat in food.

Materials

Butter	Knife
Sugar	Several sheets
White flour	ordinary
Suet	notebook
Peanut butter	paper
Olive oil	

Third Experiment

Spread a small amount of butter on a sheet of paper. Then scrape it off in order that the spot can be examined carefully. The butter leaves a clear, greasy spot on paper of this type, showing that it contains fat. Put small amounts of the other suggested foods on paper of the same kind. Place the papers on the radiator or in some other warm place for a few minutes. Examine the different papers to see whether grease spots have appeared.

Results

Butter, suet, peanut butter and olive oil make grease spots, showing the presence of fat. Sugar and white flour do not contain fat.

Conclusion

Fat in foods can be identified with a grease spot left when the food is placed on paper under conditions described in the experiment.

Application to Upper Grades

The test for fat suggested next will be more interesting to older students than the one just described because of the additional step required in removing fat from foods with ether. If equal amounts of all foods are tested, the results may even indicate roughly the relative amounts of fats in the various foods. This adds interest but should be attempted only if students and teacher are experienced with such tests. Students who find ether disturbing should not be required to handle it.

Experiment with Fat (2)

Problem

To make another test for fat.

Materials

Cooked egg yolk	White flour
Cornmeal	Cream
Chopped peanuts	Bacon
	Test tubes
	Ether

Flat dishes

Fourth Experiment

Put a teaspoonful of the cooked egg yolk in a test tube. Cover it with ether. Shake carefully for one-half minute, holding the finger over the top of the test tube. Let the egg yolk settle to the bottom, then pour the ether carefully into a flat dish. Set the dish aside until the ether evaporates. Fat is left on the dish. Prove that this is true by making the grease spot test with this residue (see third experiment). In the same way try each of the other foods suggested under "Materials." Note carefully which ones show a grease spot.

Results

Egg, peanuts, cream and bacon make grease spots, showing the presence of fat. Cornmeal and flour do not contain fat.

Conclusion

Ether dissolves fat. Fat in foods can be identified with a grease spot when the fat has been dissolved from foods with ether.

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Pupils: Food Facts for Every Day, by Florence Winchell. Chicago: J. B. Lippincott Company.

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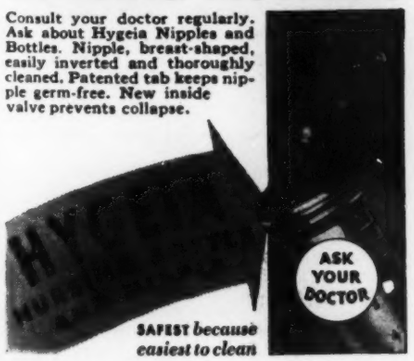

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Little Journeys Among High Schools: II

Use of the Growth Motive in Teaching Health

JEAN V. LATIMER
Coordinator of Health Education
Division of Child Hygiene
Massachusetts Department of Public Health

Teaching becomes easy, fascinating and effective when linked with the child's felt needs. Every boy and girl wants to grow up. Miss Latimer in the second article of her series reports on how the growth motive may be used in high schools.

WHO AS a child has not wanted to play being grown up? All educators realize that the elementary school child's interest in growth may be used as an incentive for motivating habits of learning which promote health.

The observation of the writer shows that teachers may also effectively use the "growth interest" in the secondary schools.

In one of the schools visited, Miss Jones, a homeroom teacher, was cooperating with the school nurse in watching to see whether all her pupils were making their expected gains in weight during the school year; and when these gains were not reached she tried to find out what could be done to remedy the condition. I observed this teacher asking such questions as: "How long before you are grown?" "How many more years do you have for your growth?" Each member of the class estimated how many more years would elapse before he was grown up, and this procedure was used as an approach to a realization that it was still necessary to continue many of the health practices begun earlier. Especially was this true in regard to drinking milk and securing long hours for adequate sleep.

In the same school the teaching of health in the classroom was reinforced by work in the general science class. Here the same pupils were considering such problems as: "What can we find out about the growth of living things?" "Do they all grow the same way?" "What is happening to growing things while they are increasing in size?"

In answer to the question, "What factors are necessary to growth?" a list was made of the things that growing plants, animals and children all need.

A science classroom is really the most suitable place to carry on experiments. Hence I was particularly pleased to observe the so-called rat feeding demonstration

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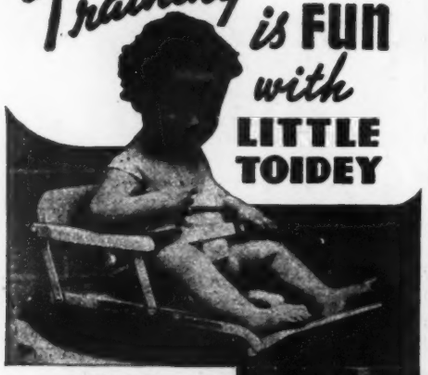

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being conducted as a part of the general science teaching, thus assuring the scientific accuracy and precision needed. Also, on the wall a graph showed that the class was carefully following the growth and development of the rats in the control versus the experimental cages.

Again in a senior high school I met this growth theme. In a biology class in a unit "How Do All Living Things Grow?" the general activities and changes which plants and animals undergo were used as an immediate background for a study of human growth and the conditions which influence growth and development.

In this class the pupils' definition of growth included ideas of maturation and mental growth as well as growth in size. The following questions and activities assisted in developing this topic: "What do you mean by the expression 'I am growing?'" "How have you changed since you were a baby?" "How many weeks does it take for the majority of animals to grow to maturity?" "How long is the entire period of childhood?"

The comparison of the growth period of man and animals provoked much thought. The teacher told the class that she had read recently a statement that the normal span of life of an animal in his native haunt is five times his age at maturity. The class was asked to estimate how long a man should thus be expected to live. There was much surprise when they worked this out and arrived at the conclusion that, thus estimated, man should live for about 110 years.

The study of the endocrine glands in relation to the regulation of growth is an interesting topic to the high school pupil. The relationship of sunlight to growth was also stressed. Reference texts were investigated in order to find out what drugs have a determined effect on growth, what experiments have been conducted to show the effect of alcohol on animals and the effect of the use of tobacco by growing boys and girls.

Scientific experiments on the relation between certain diets and the growth of adolescents were investigated. The study of the nutritional experiment with a group of English school boys—when one group showed a remarkable acceleration of growth with the addition of endive to their diet—provoked much interest.

One of the girls in the class told of a study made recently at Smith College in which it was revealed that the average college girl of today is taller than her mother was when she attended college. The class speculated as to what were the possible causes of this change.

Certain members of this biology class were encouraged to undertake a study and report on the growth records of their own younger brothers and sisters. Graphs were kept, showing their curves of growth during the school year.

In this classroom a spontaneous and vital discussion took place on the meaning of emotional maturity—the need of which the psychiatrists are pointing out to us today. A boy summed it up when he said, "When we are small we are told not to cry like a baby. As we grow older this same thing should apply to us and be expressed by saying 'Stand up and take life like a man.'" Case studies illustrating typical behavior situations and responses on the part of high school boys and girls followed.

Such a dynamic type of biology, in which the organization centers around an understanding of the fundamental life processes and activities, offers innumerable opportunities for the integration of health teaching and for emphasizing the factors in daily living which make for health and proper growth.

NEW BOOKS ON HEALTH

(Continued from page 935)

NUTRITION NEWS

Vol. 1, No. 1. Pp. 4. Chicago: National Dairy Council, October 1937.

THIS is one of the brightest publications on health education that the reviewer has seen. It is most attractive in its mechanical makeup with an atmosphere of newness. The first article is "An Investment in Protective Foods Is an Investment in Good Nutrition" by E. V. McCollum. It contains one of the best true stories on nutrition that has appeared. There are four excellent articles in this issue with some interesting notes and book reviews. Although *Nutrition News* is published by a commercial organization, it is thoroughly scientific and sees nutrition problems not merely from the point of view of dairy products but from that of the well balanced diet. Teachers in practically any grade will find this pamphlet interesting and helpful.

J. M. A.

[NOTE.—Books reviewed or mentioned in this section, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

EXERCISE

(Continued from page 915)

not all good or all bad. How often one hears the remark from an addict that if he could ever get his woods and irons and putter to work all on the same day he would be some golfer. Of course much of the allure of the game lies in the universal experience that on almost all days of play the man who has nibbled at the thing makes some good shots. In few connections does hope spring more eternal. Most golfers do make some improvement in spite of what they may say when melancholy sits upon them.

The game should be approached, then, in a spirit of intelligent recognition of its peculiarities; in a spirit of playing it as well as one can with the time at one's disposal; in the spirit of getting fun out of it, ever and always; with the remembrance that Rome was not built in a day; with the knowledge that kingdoms do not rise and fall with a man's score and that his job and position in society do not depend on it.

I happen to play often with a man who possesses an awful stance but a grand attitude toward the game. His woods are erratic, his approaches quite good, and his putting is usually good. He gets great joy out of his good shots and almost equal joy out of those of his companions. He will take his peculiar stance on the tee, wallop a terrible hook half a mile or so into the woods, losing a ball and two or three strokes and say, "Well, I hit it, didn't I?" He will never be a first class golfer; but he will never fail to be a first class sportsman and companion or to get fun out of every game played.

Exaggeration of the importance of winning has damaged many of our sports and will damage all those in which it exists. And it must be admitted by any impartial observer that this exaggeration is apt to occur when money is involved. This useful commodity may or may not be the root of all evil; but it certainly accounts for its full share.

Professional baseball has had to be hedged about by agreements, rules and a commissioner to avoid abuses; and it appears that these safeguards function well. Horse racing needs similar eternal vigilance to prevent all sorts of shady practices, and one hears that some crookedness exists in spite of precautions. College football has suffered as a sport from the increasing financial importance of winning, although it has advanced into the class of big business; and I, who am fond of football, venture to express the hope that professional football will prosper enormously so that college football may be restored to the colleges and the boys, as college baseball has been.

And while I am venturing I may as well voice the opinion, which will probably be unpopular and have about the same effect as the proverbial water on the duck's back, that it is a poor game which requires betting by the participants in order to make it interesting. Golf is far too good a game to need it, and I suspect that the almost universal habit of placing bets, smaller ordinarily than that of the Duke of York, to be sure, increases the importance of winning enough so that the game may make some nervous persons more nervous and petulant persons well nigh impossible to live with.

The competitive spirit is so firmly implanted in the male human breast that some modern schools and camps have done away with all competitive athletics. If they have done so with the notion of removing the competitive spirit from youth they might equally hopefully attempt to put out a forest fire with a thimbleful of water. If they care to inculcate a spirit of fair play they might better keep the athletics and take measures to make it seem worth while to the youngster to do his best under the rules, to win gracefully and lose generously and to be a good sportsman always.

As has been remarked elsewhere and by others, a man is but a boy grown older, and for the sake of his body as well as that of his soul he probably should not approach golf with too keen a desire to win.

As to how to play golf, I mention this subject merely to dodge it. There are whole libraries of books and articles on this phase of the thing by those who know something about it, as I don't. Blithely I refer you to them. If they fail to improve your game my conscience is clear and my hands are clean.

Yet the whole thing is absurdly simple, almost as simple as the Brittanica's definition. Since the object of the game is to hit the ball from here to there with as few strokes as may be, all that the player needs to do is to select the proper club and smite the ball accurately in the correct spot with the proper force and in the direction that he wishes the ball to follow. When distance is desired, the club head should go through the ball at the greatest speed which can be imparted to it, and this involves a full arm swing with a relatively long club. It is always helpful to have the face of the club at right angles to the hoped for direction of flight and to have the

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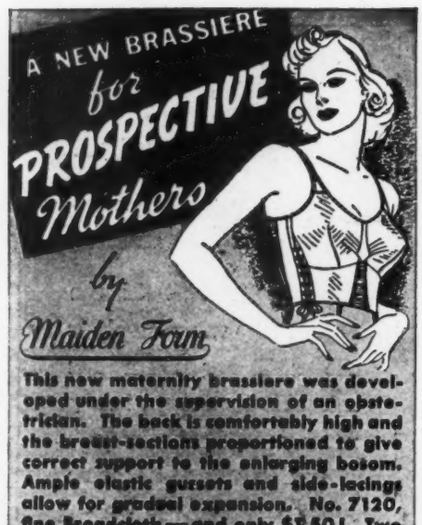
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head of the club travel in that direction with good follow through. On shorter shots a shorter club will be used as well as a shorter and less vigorous swing but one maintaining the accuracy in striking the ball. This seems to cover the whole matter succinctly and without distracting digressions into minor details.

In summary let it be said that this wonderful game deserves its popularity. It has been a real boon to thousands on thousands of adults in this country. Its virtues far outweigh its faults. In my mind's eye as I write are two pictures, the one of ten boys from 12 to 15 years old learning the golf swing with an instructor, using yarn balls but starting out early to add this game to their resources for health and happiness; the other, of an old, gray man of 80 who was to be seen practically any day of the summer on the sportiest course in New Hampshire, playing around in leisurely fashion with three clubs, a 2 iron, mashie and putter which he carried in his hand. I think that he had but one wooden tee, which had a string attached to it so that he could retrieve it. I never heard him mention how many holes he played or what his score was; but when you played up behind him, he always courteously let you through, having a little conversation as you passed. Every one who played there knew him, and every one was his friend; and Mount Stinson to the north was his friend, as were Mount Tecumseh in the distance to the northeast and the Baker River winding its swift and gurgling way through the course. His was a serene and delightful occupation, spending several hours each day outdoors, among such friends in knickers or shorts and on the landscape, friends who would pass with summer, friends which had been there since his childhood and would be there to the end. Scores probably didn't mean too much to him; he placed no bets and drank no liquor. He just enjoyed his golf and his life.

In my enlarged spirit at the moment I almost wish that I might have the pleasure of playing with each one of you who may read these halting lines in order that your day might be brightened by seeing how much better your game is than mine. But let's "soft-pedal" the quality of my game and propose a toast, "Here's to golf, a grand servant of man but a poor master! May it be played more—and more wisely! The Royal and Ancient and Worthy!"

[NOTE.—In the November issue, Dr. Reed will continue his series on exercise with an article on riding.]

LEFT-HANDEDNESS

(Continued from page 895)

hands but most keenly in the one not touched; and sensations were crossed, so that if a hot object was held in the right hand and a cold one in the left, the right hand felt coldness and the left hand hotness. This disturbance was transmitted through four generations, involving nine individuals. It brings to mind the "original" Siamese twins, who were incompletely separated halves of the same boy. It is related that if one of them was touched while asleep, the other one would awake and ask what was wanted.

Left-handedness sometimes accompanies a much more far-reaching disturbance; namely, the complete reversal of the viscera, known in medical literature as situs inversus. In such cases the stomach is found on the right side, the heart beat is felt on the right side, and the appendix is on the left. The whole (sometimes only a part) of the contents of the body is turned around as in a mirror image. This situation is found in the right-hand component of most "Siamese" (conjoined) twins, and in perhaps 1 in every 5,000 or 10,000 other persons. It runs in families so has been presumed to be inherited. It can be diagnosed only by x-ray examination or by opening the abdomen; but in men it may be suspected from a reversal of the ordinary position of the testicles. In the average male the left testicle hangs lower than the right; in situs inversus the right hangs lower.

Such considerations as these justify the statement, I believe, that the bilateral symmetry of the body, and the deviations from it, present one of the most interesting, and largely unsolved, problems of biology and that they at least should put one on one's guard against accepting any easy and superficial explanations of left-handedness and other related phenomena.

Many naïve ideas concerning the cause of left-handedness are in circulation. It has often been suggested that ancient man held his shield in his left hand in order to protect his heart and used his sword in his right, thus giving the latter arm more exercise. This is about on a level with supposing that man's ears developed from his skin because he turned one side of his head or the other attentively to hear a distant sound.

The behaviorist school of psychology, which has distinguished itself by going back to a number of ancient superstitions and making them modern articles of faith, has

adopted Plato's idea that handedness is the result of nursing and education. It assumes that there is no inherent tendency one way or the other but that the child's position in the womb, the way he is placed in bed, the encouragement of his parents and such influences bring about a final predominance of one hand or the other.

The reasons for believing that handedness is constitutional and inherent, not acquired, are too numerous to be explained away. Some of them have already been suggested. Briefly:

1. There is a marked asymmetry of the skeleton and of the brain, on the two sides of the body.

2. Handedness is correlated with other fundamental, biologic differences such as those of sex and of intellect.

3. It is correlated with fingerprint patterns, which are certainly not the result of training. There are characteristic differences in the patterns of right and left hand, which are to some extent associated with handedness.

4. It is also associated with the hair whorl on the crown of the head, an inherited characteristic which is little affected by training, as many people can testify who happen to have one of these whorls on some other part of the scalp, which has stubbornly resisted the hairbrush during an entire lifetime. The right-hander most frequently shows a clockwise whorl; the left-hander is more likely to have the whorl turning in a counter clockwise direction.

Another theory makes handedness depend on eyedness. This is refuted by the fact that among the congenitally blind, left-handers are just as common as among those who can see. It is more reasonable to suppose that the dominance of one lobe of the brain establishes the dominance of both eye and hand.

If the handedness is inborn, is it also inherited? This has been both affirmed and denied. Conclusions of earlier students, who represented handedness to be a simple trait behaving in a simple and regular way in its transmission from one generation to the next, have not been maintained successfully. Since the left-handed trait is common, it would be expected to occur repeatedly in an occasional family, merely by chance. But some of the pedigrees are striking. Thus, a family is described in which a left-handed mother and right-handed father had eight sons and six daughters, all left-handed.

Among thirty-three families in which both parents were left handed, 46 per cent of the children were so too. In fifty-five families where the mother was left handed, 14 per cent of the children were the same; and in eighty-two families where the father was left handed, 10 per cent of the children were. If these proportions were maintained in the collection of a larger body of data, they would suggest that mothers transmit the tendency more than fathers—unless the difference is due to imitation.

When left-handedness appears frequently in a family, it is probably due to some inherited peculiarity, perhaps affecting the development of the brain. But an isolated case in a large family of right-handers may have quite a different origin. In about one third of all identical twins there is mirror imaging; that is, one represents the mirror image of the other in the reversal of symmetry, as noted in such traits as handedness, fingerprints, hair whorl and the like. There are many cases of twinning in which one twin dies in the uterus at such an early age that his existence is not even suspected. H. H. Newman, professor of zoology at the University of Chicago, has surmised that some sporadic left-handers may be merely the surviving left-handed components of a pair of identical twins, the right-hander of the pair having died a few weeks after conception.

If handedness is largely inborn, any attempt to change it later in life is likely to be disastrous. Many of the lighter grades evidently do shift over for if inquiry is made among children the percentage of left-handers is found to be higher, sometimes twice as high as among adults. Many parents insist that the left-handed child shift over; in addition, a few are obliged to shift because of injury, and a few right-handers are forced to depend on the left hand because of an injury to the right. Dr. Samuel T. Orton in a recent review of the subject found only three cases in which parents had deliberately obliged a right-handed child to become left handed. "In one, the mother herself became confused in facing the child across the table as to which was the child's right hand and consistently taught the youngster to use the left under the impression that she was training the child as a right-hander. The other two cases were those of boys trained on the left side by their fathers in the effort to make ('southpaw') baseball pitchers of them. Both efforts failed."

The commonest evil imputed to a shift of hands is stuttering. Since the dominant half of the brain contains the speech center as well as

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the centers that control reading and writing, any interference with hand dominance in childhood may react on the brain and disrupt the patterns of other nervous impulses.

Various censuses of school children indicate that 2 or 3 per cent are to be classed as stutterers and that the peculiarity is at least five or six times as common among boys as among girls, in line with the biologic principle that boys are more subject than girls to all sorts of inherited defects and handicaps.

The most critical evidence thus far produced is from identical twins. In most instances, if one is a stutterer, both are; but four cases are reported of such twins, one of whom was right handed, the other left handed, and in these cases only the latter stuttered. In a fifth case both had stuttered but the left-handed one more conspicuously than the right.

The further appearance of left-handedness, nervousness, motor difficulties and various types of speech disorder in the same family, as is often observed, confirms the belief that there is more than a chance association between these various features.

The weight of expert opinion is now almost wholly against trying to shift the child's laterality, unless the left-handed dominance is very slight indeed. Self-styled ambidextrous persons are common—about fourteen males and seven females per hundred, most of whom undoubtedly represent left-handers who have developed the use of the right. It is doubtful whether they gain much by this process. The pure right-hander is found by most tests to have the advantage; the pure left-hander comes next; the various intergrades are at the bottom of the list.

Since there is thus no great advantage and since there is a very real danger of producing nervousness, speech difficulties and other complications by a shift, parents are well advised to let the child alone and permit nature to take its course.

LITTLE CLARIBELLE LEARNS TO BE KIND TO ANIMALS

(Continued from page 917)

arrow. The dogs would get it anyhow, he said. Claribelle was farther from the jungle than he and said she was going to keep it always.

"But it's in a cage and lonesome," said Judith. "How would you like to be in a cage and lonesome for some one you could play with and talk to?"

"It plays with me, and I talk to it," Claribelle defended her stand.

"See how it goes around that little cage and sticks its nose out?" Old Sock reminded her. "You talk to the bunny, but it can't tell you any other way how badly it wants to get out and run around free."

"If I let it go the dogs'll get it!" Claribelle objected unhappily.

"Aw, don't you have to watch out for autobiles?" was the surprising remark of Old Teaser. "If Mamma and Papa kept you in the house all the time because there're cars running around all the time, you wouldn't like it. That ol' rabbit's got to have sense enough to stay away from dogs. If it don't, it'll be just too bad."

"If I let this bunny go I want a big white rabbit."

That ended that particular conference because she was turning the tables on the family. White rabbits did not know what it is to be free anyway.

The same day, Claribelle was playing with a neighbor's tortoise shell cat which was an old crony. As cats do sometimes when their "tummy" or ribs are tickled, it bit her hand with a fang puncture and scratch. After Mrs. Answith had administered first aid, she began to lecture. Once more Claribelle had unusual duties. Each day she must see that cat and ascertain its state of health. That became quite a chore because she liked to forget about it. Once she was forced to go with Dr. Answith to look at it. He explained that although the cat was not shut up in quarantine, it was being observed until he was certain Claribelle was not in danger of rabies. If the cat had been a stray with no home he would have it in a cage. As matters stood, everything would be all right unless the cat should disappear. The cat's owners were trustworthy neighbors, or he would have reported the bite to the health officer and had the cat impounded for observation. Meanwhile, Claribelle must learn that she could ordinarily be kind to animals without being bitten.

Claribelle did not quite learn her lesson; but fortunately she was not bitten. One day, a whole week after it happened, one of her playmates was at the Answith's home. She said she was taking "shots"

every day for rabies. A bit of domestic anxiety started because it developed that Betty Jane's pet dog began acting as though it had a bone in its throat a day or two after Claribelle had been playing with it. It was an affectionate animal and licked her. About a dozen of Betty Jane's neighborhood playmates were also taking the rabies vaccine, and their own dogs were being closely observed. Her dog undoubtedly had a case of "dumb rabies," and the veterinarian had destroyed it.

Dr. and Mrs. Answith were rightfully provoked because they had not been informed of the incident sooner. The whole matter was investigated and checked for accuracy. Old Sock spent several hours in his father's library and read up on the subject. Little Claribelle was carefully examined for any signs of cuts and scratches which might be a week old. Fortunately none were found. She was really concerned this time, especially when they took her to see the doctor who knew the most about rabies. He, too, asked many questions and looked Claribelle over carefully. Claribelle was greatly impressed this time. Finally the doctor advised that rabies vaccine should not be given, and he gave his reasons. The Answiths felt somewhat better.

"Why did you take me to that doctor, Daddy?" I heard Claribelle ask as I drove them home.

"Well, Claribelle," said Dr. Answith, "I know something about rabies but not as much as he does. Besides, doctors don't like to make such decisions about their own kiddies. I would do it if it were necessary, but I would rather some other doctor would give you your 'shots.' They don't hurt much, but I wouldn't want to hurt you even that much."

Of course that was not the entire story. I got that when the doctor was answering the questions of Junior and Judith. Old Sock had read all he could find about rabies and was like most educated but inexperienced youngsters—didactic, if you understand what I mean.

"She's still running a risk, isn't she?" he asked. "Why didn't you insist on having the vaccine given?"

"Yes," agreed Dr. Answith unhappily, "there is a risk. Dr. Harris did not say so, but it's a statistical reason."

"What's statistics got to do with Claribelle?" asked Judith uneasily.

"Maybe Junior can tell you," replied Dr. Answith, wishing to take some of the wind out of his sails and teach him something too.

"Er-uh," stammered Old Sock. "I don't know quite. . . . One out of seven to ten people bitten by rabid animals and not treated get the disease. It makes some difference whether they are bitten about the face or head. Er—it makes some difference—they can get rabies even if they aren't bitten; that is, if the rabid dog's saliva gets into a fresh cut or scratch."

"Yes, but if the abrasion is older than twenty-four hours the risk isn't much," prompted Dr. Answith. "What about sunlight?"

"Well, it kills the virus quickly. . . . I see now, Claribelle was there on a sunshiny day, she played outside, and she was out a while after leaving there, and there weren't any fresh breaks in her skin. That lessens her chances, but where do the statistics come in? We won't be able to forget this for over forty days, will we?"

"Rather more than forty days, really. Claribelle's chances are remote but real. We'll have to trust to 'dumb luck' in this case. Dr. Harris would be as badly broken up about this as we would if anything were to go wrong with Claribelle. What are the chances of something going wrong if the vaccine were to be given?"

"From rabies? None, I'd say."

"I mean, from the vaccine."

"Oh, I do remember that there are a few chances in 50,000 or 100,000 that the vaccine might—but that's so remote that people have to take that risk if they're bitten by a rabid animal."

"Quite true, Junior, they should. In Claribelle's case they just about balance each other. Wouldn't it be a bit foolish to insist on taking those chances just to please ourselves?"

"Please ourselves?" exclaimed Judith uncomprehendingly.

"Certainly," said Old Sock unkindly to cover his emotion. "Why expose her to one risk which is just as much as the other? Neither is much, but if the vaccine were given now it would be to please us rather than protect Claribelle."

"Oh, I see. It wouldn't be very kind to Claribelle either way, would it?"

"As a parent," said Dr. Answith, "I almost wish there had been more cause for giving the vaccine, but it's selfish of me. As a doctor, and as a patient's father, I'm bound to follow the other doctor's advice."

"Well, anyway," exclaimed Old Sock, "Claribelle is worrying more about what to do with that rabbit." He wanted to change the subject. "I like dogs, and I used to get sore because you wouldn't let me keep one. I think I understand better now. The other fellow always thinks his dog is harmless."

"And he doesn't always face the music when he finds out other-

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wise," agreed Dr. Answith. "If Claribelle had been scratched . . . or this remote possibility turns out badly . . ."

"Hadn't we better let Claribelle keep the rabbit?" asked Judith, weakening.

"And we've just been talking about being kind to animals!" Old Sock almost choked, but he wanted to be rational. "When we go down to Grandpa's farm next week, maybe she'll understand better why a cottontail nuisance would be better off free. We've got too much sentiment in this family sometimes."

"One more rabbit won't make much difference to Grandpa," agreed the Dumb Cluck.

And so it happened that little Claribelle did the big thing—even though it hurt. When she saw a few other little bunnies around her grandfather's farm, she realized that her little orphaned bunny was big enough to go out into the world to take its own chances with the dogs and cats.

She cried when she set it free by the hedgerow. Even Old Teaser was silent and blinked the tears back. It is often hard to be kind in the right way.

ACNE

(Continued from page 883)

spreads infection. "Don't pick, and don't squeeze," he warns.

The physician stresses the importance of right living, for anything that interferes with the body's metabolism aggravates acne. "Plenty of outdoor exercise, lots of fresh air and sunshine, proper elimination," are his directions. "And a simple diet. Go slow on sweets, pastries and rich fried foods. Eat, instead, more fresh fruit and vegetables and enough protein foods—along with plenty of milk." He may prescribe the use of a dependable brewer's yeast for a shortage of vitamins B_1 and B_2; and for mineral deficiency, he may give iron with a little copper or even a little tin.

He will probably prescribe ultraviolet ray or x-ray treatments or both. The former are in effect like sunshine and like sunburn for peeling the thickened outer layer. X-ray treatment is the one great weapon for curing infection; but it is safe only in the hands of an expert!

On the glandular problem medical practice is still more or less divided. If acne is due to a gland "lag," then, logically, glandular dosage should help.

Sometimes it does; sometimes it does not. Dermatologists are inclined to look at the failures and

ACCEPTED FOODS

This department is a useful guide in the selection of foods of quality, advertised with truthful claims. All products in this section as well as any others advertised elsewhere in HYGEIA stand accepted by the Council on Foods of the American Medical Association, and are entitled to bear its "Seal of Acceptance." The foods listed here are but a portion of those accepted by the Council. If you desire information regarding any other food product, you are invited to write to HYGEIA.

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"IN THE NAME OF COMMON SENSE—WHY Worry?" is the name of a new book published by the Macmillan Company. It is a sound, shrewdly written book which should prove most helpful to chronic "worriers." For a full description of this interesting book see page 951.

HERE'S HELP FOR MOTHERS WHOSE CHILDREN can't keep hands from the face or mouth. For over six years Proven-Ta-Habits have been recommended by physicians to overcome this habit. The device keeps the child's hands from the face without interfering with play. See page 954 for full details and the manufacturer's offer of free illustrated material.

DO YOU KNOW WHAT TWO SEALS GUARantee the quality of HEINZ STRAINED FOODS for babies? See page 958 for the answer, and see your grocer for the answer to "What to feed baby?" He'll show you the complete Heinz line of 12 different kinds.

HOW CAN YOU BE SURE THAT THE LIGHT conditioning units you buy are really I.E.S. Better Light Better Sight equipment? The Westinghouse advertisement on page 948 gives two good ways to insure buying the most efficient light for your money. Check up on this before stocking up for Fall or Winter needs.

IF YOU HAD A FRIEND IN CALIFORNIA who knew how to select a 10 pound assortment of large white figs, California dates, mammoth prunes, white raisins, would you hesitate to have him send it to you? See page 950 for the advertisement of a man who has been a friend to thousands in just this way. All you do is send him $3.00 if his selection suits you.

(Continued on next page)

to attack the condition by a course of x-ray treatments to lessen the overactivity of the oil glands. Family physicians are more inclined to look at the successes and to make glandular dosage part of their therapy. This is done at the state institution previously cited.

Admittedly each of these technics requires cautious administration by a skilled physician. Meanwhile the best men in both fields are making high records in the correction of acne.

Undoubtedly experience will eventually enable doctors to differentiate between those cases that are specifically glandular, those due chiefly to local causes and those due mainly to faulty hygiene or nutritional disturbances. Laboratories, too, will continue to improve certain of their glandular preparations.

But the significant fact remains: that acne has at last ceased to be a medical "no man's land," for half of these nearly 4 million boys and girls can help themselves, and physicians can help the other half. Youth must go through "the awkward age," so there'll always be a tendency to acne; but it's nothing to be ashamed of, and they don't have to outgrow it!

THE DIAGNOSIS

(See page 923)

"The Diagnosis" is the second of a series of medical caricatures by William Sharp which will be published in HYGEIA. Original signed and limited lithograph prints are available.

AMERICAN PUBLIC HEALTH ASSOCIATION MEETING

The American Public Health Association will hold its sixty-seventh annual meeting in Kansas City, Mo., October 25 to 28 with more than 3,000 professional public health workers in attendance. The program comprises fifty morning and afternoon meetings arranged by the ten sections of the association, and at these sessions more than 300 papers and reports will be presented.

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(Continued from preceding page)

WOULD YOU LIKE TO HAVE A TRIAL package of B-ETTES, the modern form of sanitary protection worn internally during menstruation? The B-ettes Corporation will send you as many trial packages as you wish at 10c each. See page 949. B-ETTES are sterilized and sealed for your complete protection. No doubt you've intended to try these new tampons —here's your opportunity!

MEN—DON'T PUT UP WITH UNCOMFORTably tight pressure on your legs; get Miracle Elastic Paris Garters and be comfortable—so amazingly elastic that you could stretch one garter around your waist even if you weighed 275 pounds. Can't chafe or bind. See page 953 for full details.

YOUR CHILD NEEDS MORE VITAMIN D than sunshine alone can usually supply at this time of year. Fortunately there is another daily source you can always depend on. See page 867 for the story of Squibb Cod Liver Oil and how its vitamins are guarded.

TO TEMPT LAZY LITTLE APPETITES TRY Cradle Baby Pure Jams as a substitute for coaxing, pleading and bribing. Cradle Baby Jams are strained and seedless—especially prepared for children of 8 or 10 months to 3 or 4 years of age. Six varieties, each one a delectable addition to toast and crackers or as a topping on oatmeal, farina and puddings. The Glaser Crandell Company, makers, offer to ship you prepaid 12 10c jars assorted as you wish for $1.20. See their ad page 947.

A BULL'S-EYE FOR HEALTH (Continued from page 936)

in the fields or woods, shooting at bunches of leaves, trees, clods of earth, or target shooting in the back yard or at the park archery ranges.

We were ready for anything; but we had to make arrows first, and that turned out to be the hardest job of all. We made a dozen each. They didn't have fancy whistles at the points, or carry burning coals, or nets to catch flying birds, as many of the arrows of the medieval archer did. They were just straight birch dowels fletched with turkey wing feathers at one end and bearing a dull brass point at the other; but they had more tricks in their feathers than any medieval archer could possibly have developed.

Somehow, our arrows were far from being masterpieces of craftmanship. Most of them were more than slightly curved. The ones that were straight had been badly fletched, which means the turkey feathers had not been put on correctly. In flight they described the most amazing parabolas and occasional figure eights and seemed to have an almost occult faculty for dodging targets. We corrected these arrow faults after a lot of hard work plus research into volumes on arrow making, and that, incidentally, is good medicine for any beginner.

We did go out though, with our curveting arrows. The first time in the field we made an amazing discovery. You can work on a rowing machine for weeks at a time, and your stomach, though ridged with muscle, will still sag. You can pull weights until your face is the color of expensive orchids, and you'll still be strengthening stomach muscles without pulling them in. But with archery there are no two ways about it—*that stomach comes in, or you don't shoot!*

There are two reasons for that. First, to pull back the bowstring you must stand as straight as an arrow, and we don't mean one of the curved arrows that we made at first. Your chest must be thrown out, your left arm braced at right angles to your body, your right arm ready to draw the bowstring across your chest to your right ear. A stance like that will force you to hold in your stomach and incidentally will knock round shoulders right off your body.

The second reason that your stomach must come in before you shoot is even more urgent. When you let go of the bowstring to shoot your arrow, the bowstring comes back across your body. If your stomach is hanging out there in front, you can guess what will happen! You'll be flayed across the middle!

So, if you have a sagging paunch when you take up archery, you quickly get into the habit of tucking it in and *holding* it in. If you don't, the bowstring will shave it off for you. In either case, you lose nothing but fat.

The first couple of times you pull a bow your arms will quiver like aspens in a hurricane. After about fifty pulls your muscles may be weary. But even if they are, you can be proud of yourself. Every time you shoot fifty arrows from a 50 pound bow, you are actually lifting the equivalent of 2,500 pounds! Since when have you done that in a single day? Or did you ever? After you have become an old hand at the game you'll shoot two or three hundred arrows in a single afternoon and never notice it. Then, in all probability, you'll sit down and figure that you've shot 300 arrows at 50 pounds per arrow—you've picked up 15,000 pounds! You'll swagger home belligerently, feeling that you are the strong man that the company needs in your job, that you are indeed the "man" over at your house. You may even find yourself measuring your biceps and wondering whether this guy Joe Louis is such a powerhouse after all.

Then, when shooting 200 arrows in a single afternoon becomes easy, you can try flight shooting. Flight shooting is particularly good for you fellows who don't feel as though you've exercised unless you get the equivalent of a wrestler's workout. In this type of shooting, arrows have been shot distances of nearly 600 yards, and the bows capable of casting them that distance are masterpieces of resilience.

Shooting the average flight bow is much like pulling on four pairs of riding boots at the same time. It's done this way: You lie flat on your back, put both feet on the belly of the bow and pull with *both* hands. Some of the flight bows that the ancient Persians used needed a pull of 500 pounds to draw an arrow to its head. Such a bow, of course, had enough casting force to skewer an elephant very neatly. So when you get so that you can pull an arrow to full draw on such a bow you are justified in making the rounds of all your friends and shyly mentioning the fact.

Incidentally, the Ethiopians actually did hunt elephants with the bow. The bows they used for this sport required a three-man team. When the quarry was sighted two of these men lay flat on their backs

with their feet held rigidly against the bow. The third man braced himself, took a deep breath, grasped the bowstring in both hands and sent the arrow on its way. That sounds like pretty strenuous sport. Probably both we and you had better wait until we have eaten a lot more oatmeal before giving it a try.

The ancient Carducians had a little trick with the bow that opens the way for exercise of a different sort. The Carducian warrior placed his left foot against the bow and pulled the arrow with both hands.

But archery is by no means pure exercise. There are archery games that provide the finest of sport—the classic English York Round and the American Round yearly attract enthusiastic thousands to tournament archery.

The York Round is a good afternoon's exercise. You shoot seventy-two arrows at a target 100 yards away, forty-eight arrows at 80 yards and twenty-four arrows at 60 yards. The American Round (you'll probably be satisfied with this one to start) is simpler. You shoot thirty arrows at 60 yards, thirty at 50 yards and thirty at 40 yards. Either of these tournaments is an amazing test of accuracy as well as a splendid workout. In shooting the York Round not only do you get plenty of arm and shoulder exercise, but you walk over 2½ miles to retrieve your arrows (not including lengthy strolls back of the target range looking for stray arrows).

And (this is the big surprise we've been saving for golf incurables) there's archery golf to keep you in winter trim. Instead of batting a wandering ball from hole to hole, you shoot arrows from target to target. Many courses all over the country encourage this game, and plenty of golfers who fuss and fume with slices and hooks all summer have their dreams come true when they try archery golf. Shooting par this way is a fairly simple job for a good archer.

For nongolfers, archery golf provides an effective stopper for winter reminiscing on the part of golfing friends. Think of how their jaws will drop and their eyes will bulge when you tell them with a quiet pride that you've just done an eighteen on that so-and-so course with all the tough dog-leg holes, in par. Think of what a relief it will be to golfers' wives. You can come home from an afternoon of gay golfing midst winter snows and say, "Well, dear, got par this afternoon—yessir, par—now what do you think of that!" Then proceed to elaborate on your success—think of the newness of the experience. You'll feel so much better than you do when you have to alibi about the greens or about how your drive just couldn't seem to get working.

Roving is one way of making a walk through the countryside twice as full of interest as before. Simply sling a big quiverful of arrows at your side. Take your bow, and start walking through the woods or fields. Every now and then, as the impulse moves you, stop and shoot at any target that you choose, a stump, a tree, a whirling tumbleweed—that's what you call roving.

Roving is fine practice for your archery because it involves shooting at different targets all at different angles. Aside from that, roving is fine exercise. Imagine walking down the street and stopping every little while to take a deep breath, throw your shoulders back and lift a 50 pound weight. If you were to do that thirty or forty times, it would probably get to be quite a chore. Yet roving gives you exactly that exercise and makes walking more fun than you'd ever imagine it could be.

This roving is what awakens most archers to the possibilities of hunting with the bow, one of the keenest sports there is. There is no other sport where the hunted has so big a chance or where the hunter must work so hard for his trophy. The thrill of getting a shot at game with a bow is as great as making a kill with the gun because, to the archer, it is a source of pride to be able to stalk small game and approach within a fair shooting range.

Today many states have set aside game preserves where only archers may hunt. Other states have special hunting seasons in advance of the regular season, a period during which archers may go after their deer.

Because we enjoyed them we tried all these uses of the bow-and-arrow—except hunting elephants and shooting 500 pound bows with our feet. Scornful folk called us Chief Flabby-Belly and Chief Whose-Breath-Comes-In-Short-Pants. But undaunted, we continued to sneak off to our happy hunting grounds alone. Then came a joyous day. We returned from a jaunt in the Forest Preserves, and lo, our squaws stood before us in full regalia.

"Ugh, got clothes for archery," they said. "Now needum heap good bows and arrows."

Well, the clothes had already been bought, and bow staves do not cost too much ($1.50 will buy a good lemonwood stave); so again we got busy on the floors of our respective kitchenettes. This time the squaws helped instead of sneer-

IF YOU HAVE A BABY—
this will interest you!

Perhaps it has never occurred to you that not all strained foods for baby are the same. Perhaps you've taken any brand your dealer has seen fit to give you, under the impression that one was as good as another.

Let us lay a few facts before you. For ten years Gerber's have been making strained foods for baby. Gerber's pioneered in research on canned strained foods. Reports of Gerber investigations have been published in leading medical journals. In other words, Gerber's are *specialists* in strained baby foods. And their plant is specifically planned for the manufacture of strained foods. Furthermore, Gerber's farms begin at the very doors of the spotless kitchens so that the *Home-Grown* vegetables Gerber's use are picked and packed at the moment of maximum ripeness and goodness.

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Bread alone cannot possibly cause overweight when it is part of a well-balanced daily diet. It is the *total day's diet* that may put on fat, provided the daily diet exceeds the usual energy needs of the body.

One average slice of white or whole wheat bread gives only about 65 calories. Butter on the bread adds another 50 to 75 calories. The normal person needs at least 2,500 calories every day.

Six slices of well-buttered bread a day, a reasonable amount, gives at the most not more than 900 calories, or only a fraction of your daily needs.

If you like bread and want to eat bread, do so by all means, with no fear of getting fat. To maintain normal weight, keep the total of *all* foods consumed within the bounds of reasonable quantity. Ask your doctor about this.

DEPARTMENT OF NUTRITION
AMERICAN INSTITUTE *of* BAKING
9 ROCKEFELLER PLAZA
NEW YORK CITY, N. Y.

ing. After a few lessons they actually became good competitors. In fact, they soon became boastful and a little contemptuous of our skill. Finally, they issued a challenge, and the "Dishpan" tournament was inaugurated.

Now the "Dishpan" tournament did not involve, as the name might imply, any shooting at a dishpan. It was simply a cunning scheme to penalize the losing team by making its members wash the dinner dishes. The losing team, of course, was supposed to be us. And, sure enough, in time they did beat us and had a hilarious evening watching us wallow in dishwater.

But archery did much more for the squaws than that. It improved their posture, made them as alert and graceful as Diana herself and strengthened their arms to the point where whipping a thirteen egg cake was a simple chore.

So archery helped the whole family by giving us added fun and health. We heartily recommend it to all. Only one note of warning should be sounded. We didn't like to mention this, but now that we've recommended archery so strenuously, we feel you should be cautioned: Don't let the music angle sidetrack you. You see, the god Apollo was hunting one day when he noticed that his bowstring twanged with a different tone each time he shot an arrow. Studying the matter more closely, he found that an interesting and amazing range of sounds can be produced from the bowstring. He went further and named each of the notes. He even took time out to build the monochord, an early musical instrument. And what was the result? Apollo became the god of music; while his sister Diana captured the hunting honors.

So this is our warning: Don't be distracted by the noises you make with your bow. If you want to start an orchestra as Apollo did, that's one thing. But if you just want some fun and exercise, take our tip and shoot a quiverful of arrows.

LEADER OR FOLLOWER?

Answers to questions on page 878

Each of the answers given below indicates a typical dominant response. The opposite answer in each case would be a submissive response.

1. Yes	6. No	11. No
2. Yes	7. No	12. Yes
3. Yes	8. No	13. No
4. No	9. No	14. Yes
5. No	10. Yes	15. Yes